

DECEMBER, 1955

PURCHASING

A CONOVER-MAST PUBLICATION

TECHNOLOGY DEPT.

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ONE DOLLAR



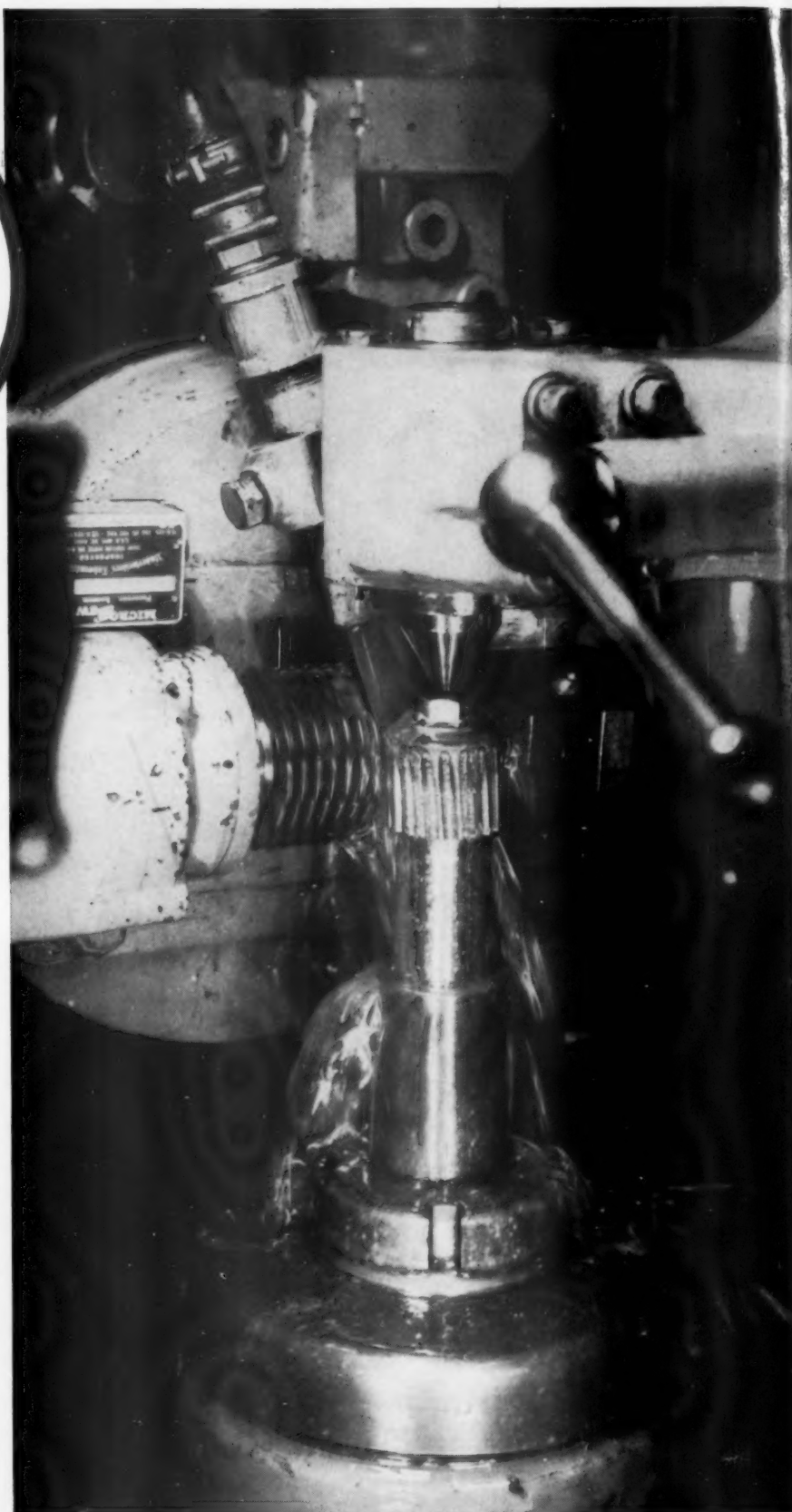
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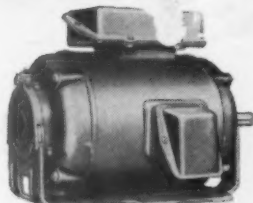
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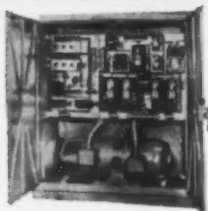
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For More Information Circle No. 154 on Inquiry Card—Page 17

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rubber products

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For More Information Circle No. 156 on Inquiry Card—Page 17

DECEMBER, 1955

IT'S LYON



5 TO 1

• Key men in companies throughout the country have given Lyon five times more first choice votes than any other steel equipment manufacturer! And more than the next thirteen combined!

Those are the findings of a nationally known research organization that asked executives in 5,000 companies this question:

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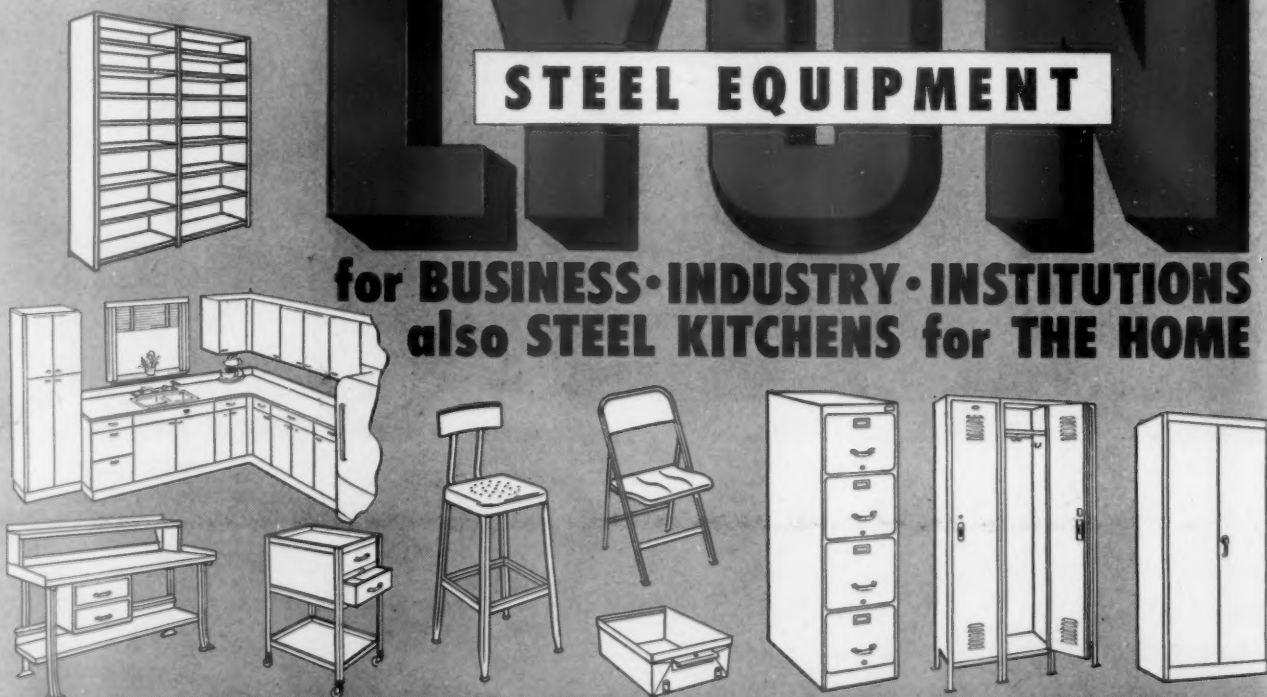
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| • Bin Units | • Drawing Tables | • Parts Cases | • Wood Working Benches | • Hanging Cabinets | • Bench Drawers | • Hopper Bins | • Shop Desks |

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PURCHASING

The National Magazine of Industrial Purchasing

VOL. 39, No. 6

DECEMBER, 1955

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1900 EUCLID AVENUE.....Cleveland 15, Ohio
914 S. ROBERTSON BLVD.....Los Angeles 35, Cal.
998 NATIONAL PRESS BUILDING.....Washington 4, D.C.
15817 JAMES COUZENS HIGHWAY.....Detroit, Mich.

Published monthly by C-M. Business Publications, Inc.

Subsidiary of

CONOVER-MAST PUBLICATIONS, INC.

Printed at Orange, Conn.

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PURCHASING is an independent journal, not the official organ of any association. Established 1915 as "The Purchasing Agent". Consolidated with "The Executive Purchaser".

Contents are indexed monthly and annually by the Engineering Index Service.

Subscription rates: United States, U. S. Possessions, and Canada: \$4 per year; elsewhere, \$10 per year. Single copies, \$1.00.

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BPA

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MARSH

*... the gauge
with the
"Recalibrator"*

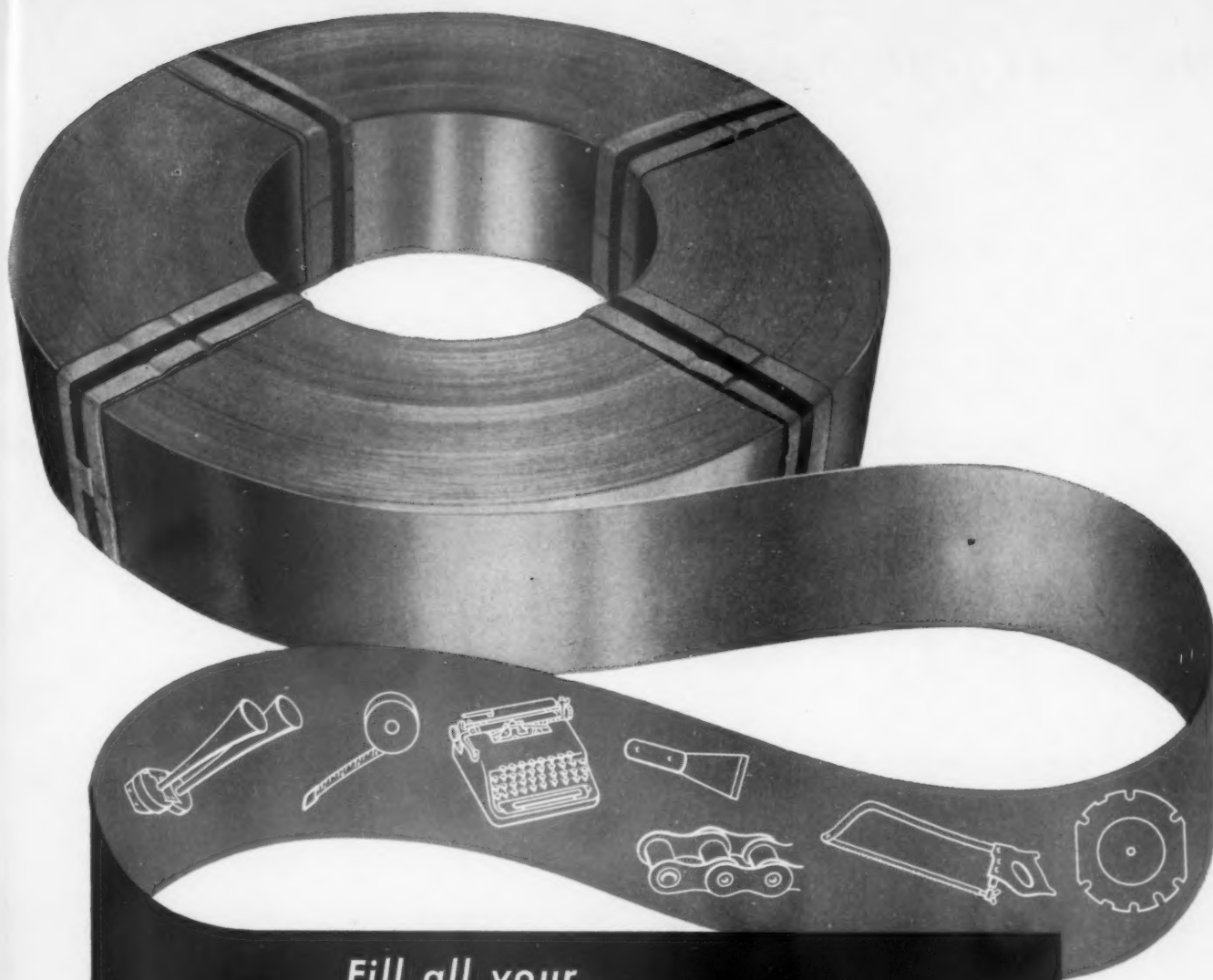


Any pressure gauge can be knocked out of adjustment, but when it's a Marsh Gauge you can quickly correct it with the twist of the "Recalibrator" screw.

This is not only the handiest way to correct a gauge; it is also the best way. Conventional methods of adjustment simply compensate for the error. The "Recalibrator" corrects the relationship between the movement and the bourdon tube—actually *does re-calibrate* the gauge.

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DECEMBER, 1955

Unravel purchasing tie-ups...



Use low-cost Long Distance!



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New York to Philadelphia . . . 50¢	Dallas to New Orleans . . . \$1.25
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CALL BY NUMBER. IT'S TWICE AS FAST.

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BELL TELEPHONE SYSTEM



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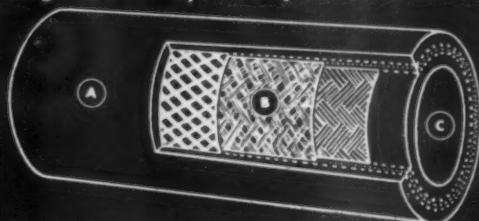


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FLEXSTEEL AIR HOSE for the
roughest foundry, factory and mill service



- A** Soft, tan-colored cover to resist cutting, gouging, abrasion.
- B** Superstrong, braided steel wire reinforcement to handle high pressures, resist crushing and kinking.
- C** Special synthetic seamless tube withstands both heat and oil.

Heavy-duty, flexible air hose *sinewed with steel for high-pressure jobs*

H EAT getting your hose? Abrasion cutting it to the core? Oil making it swell and break down?

Then **FLEXSTEEL** is the hose for you. For this latest development of the G.T.M. — Goodyear Technical Man — is designed to handle high-pressure air under the toughest foundry, factory or mill working conditions.

It's built with a special tube that resists heat and oil.

It's built with a special cover that resists cutting, gouging and abrasion.

And it's sinewed with superstrong, braided steel wire that resists crushing and kinking.

But for all its super-toughness it weighs far less than you'd expect, is surprisingly flexible for easy handling.

Many hose users have already proved **FLEXSTEEL** best for their jobs. They report longer hose life, better hose service, big reductions in hose costs.

Let **FLEXSTEEL** prove itself for you, too. Get full details from the G.T.M., your Goodyear Distributor or by writing Goodyear, Industrial Products Division, Akron 16, Ohio.

YOUR GOODYEAR DISTRIBUTOR can quickly supply you with Hose, Flat Belts, Packing or Rolls. Look for him in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods."

Flexsteel — T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

FLEXSTEEL by

GOOD YEAR

THE GREATEST NAME IN RUBBER

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DECEMBER, 1955

*Wire rope lasts as long as the
wire it's made of!*

ROEBLING'S NEW ROPE WIRE

1105

**HAS THE CAPACITY TO ENDURE...
AND**

Royal Blue

**WIRE ROPE
IS MADE OF 1105!**

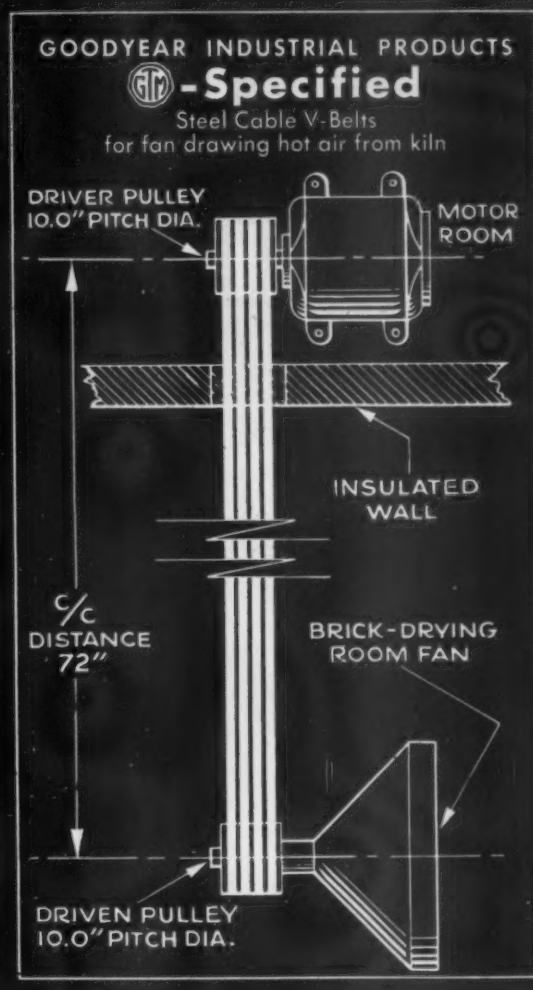
*Write us for full facts on the all-steel
Royal Blue Wire Rope, or contact your
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To solve the problem the G.T.M. — Goodyear Technical Man — was called in. He recommended Steel Cable V-Belts made with load-carrying cables of high tensile steel. The tensile member of these high-strength belts is unaffected by heat. The belts have practically no stretch, are designed for minimum maintenance.

RESULT: The Goodyear belts served 5 years before replacement—7½ times longer than belts previously used. They stopped costly plant shutdowns and, since they did not slip, reduced pulley wear.

If you have a problem drive that's costing you money, call in the G.T.M. for expert help. Contact him through your Goodyear Distributor or write:

Goodyear, Industrial Products Division
 Akron 16, Ohio

YOUR GOODYEAR DISTRIBUTOR can quickly supply you with Hose, Flat Belts, V-Belts, Packing or Rolls. Look for him in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods."

STEEL CABLE V-BELTS by

GOOD YEAR

THE GREATEST NAME IN RUBBER

For More Information Circle No. 163 on Inquiry Card—Page 17

UNITED

SPECIAL MILLED PRODUCT



An extensive variety of all sizes of automatic screw machines and hand screw machines, coupled with many types of "second-operation" equipment, including heat treating and modern centerless grinding, and the know-how to meet your requirements—is your guarantee that "UNITED" is a good source for your special milled products, in all available metals.

**SCREWS • NUTS • WASHERS
CLUTCH HEAD SCREWS
STAMPINGS**

United Screw and Bolt Corporation

Chicago 8

Cleveland 2

New York 7

For More Information Circle No. 164 on Inquiry Card—Page 17



WASHINGTON REPORT

for purchasing agents

December 1, 1955

ROADS TO PRIME ECONOMY

Government is banking on a large increase in road building to carry industry into new high ground next year. Home construction is likely to taper off, and autos will do exceedingly well to carry on at the same pace as '55.

Road planning—the big interstate highway program—calls for a 25% jump in new road building each year for several years. It would carry with it a large segment of industry—steel, cement, communications, commercial building.

Spadework is under way to smooth out the political snarls that developed in the last session of Congress. The Administration proposal, calling for a bonding program underwritten by the Federal government, was stopped dead.

Large-scale highway increase is thought too important to be passed over again. It is generally believed that an acceptable solution will be worked out early in the coming session of Congress.

* * *

PUBLIC WORKS BACKLOG

Highways will be just the beginning of an increased emphasis on public works—not as a made-work activity, but to meet immediate need.

Cities are in for major overhauls. The movement of rural people to the cities, because of farm mechanization has highlighted city shortcomings.

So-called "urban renewal"—the reclamation of centrally located sections of a city that have been allowed to die—has been getting some attention, and will get more.

A staggering amount of municipal services—sewage, water, facilities—is another long-term need that must be filled.

* * *

BASIC INDUSTRIES EXPAND

These are the factors on which the steel industry is banking for a further increase in capacity. Cement makers are doing the same.

Less than 18 months ago, spokesmen for the steel industry protested the small expansion of Brazilian steel mill capacity. They said that world capacity has already been over-expanded and that the U.S. could take care of domestic needs and all Latin American requirements.

Now, another round of steel expansion is planned—with no more visible avenues of use than were apparent in the last several years.

* * *

TESTING PROSPERITY LEVELS

Explanation for these wide swings in approach vary. Apparently there is such great suspicion of prosperity that



That's the long-life valve on sulphuric acid

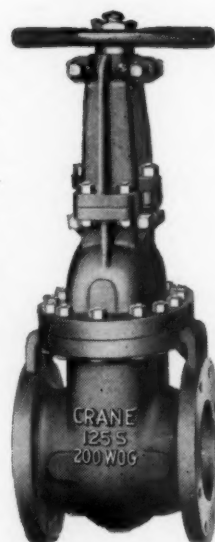
THE CASE HISTORY: At a large midwestern refinery there were recently two valves of different makes on a 90% sulphuric acid line. As seen in the photo above, these valves worked under identical conditions, almost side by side—each operated about three times daily.

Less than a year in the line, the valve at left started leaking, with the leak getting rapidly worse. In contrast, the Crane No. 475½ all-iron gate valve at right, with two years' continuous service to its credit, was still giving completely good performance.

That's Crane quality in valves—with a 100-year background in quality manufacturing. That's why Crane valves are the first choice of thrifty buyers in the petroleum industry as in all others. Crane Co., General Offices, Chicago 5, Ill. Branches and Wholesalers serving all industrial areas.

CRANE IRON BODY WEDGE GATE VALVES

Here are valves of unusual strength for their 200-pound W.O.G. rating. Body and bonnet are oval shaped, with extra metal where needed most. Their Crane-quality cast iron with highly engineered operating design makes these valves outstanding performers wherever they're used. A complete family to choose from. See your Crane Catalog or your Crane Representative.



CRANE CO.

**VALVES • FITTINGS • PIPE
KITCHENS • PLUMBING • HEATING**

CRANE'S FIRST CENTURY...1855-1955

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WASHINGTON REPORT

continued

people feel compelled to test its strength by pulling back every year or so to see whether the tide will keep coming or recede.

As these points of testing meet the challenge, a new growth surge develops.

* * *

PURCHASING AGENTS BALANCE ECONOMY

Purchasing agents are caught up in these wide swings and tend to become important in creating some degree of balance. Inventory policies have been orderly. P.A.'s have resisted wide and speculative positions.

Factors behind the runaway copper price market several months ago were the strike which cut off South African output, the strike in U.S., plus the large world-wide industrial demand.

World market prices pushed up sharply, but U.S. producers held their price line. They kept one eye on the fact that both aluminum and plastics are growing competitors.

While the price squeeze developed, purchasing agents had the thankless job of guessing how real the shortage was and how long it would last.

If the squeeze were to be short-lived, the purchasing agent could live off inventory for awhile. But if it persisted, there would be a really violent scramble for deliveries.

* * *

MATERIAL SUBSTITUTIONS TEMPER RUNAWAY PRICES

U.S. industry is more sensitive than anyone to the threat of competitive materials. They know that substitutions will be made here quickly and can have a wide impact.

For some time now there has been a large increase in the use of aluminum and of plastics. But the use of copper has also increased.

Also, despite the widely touted competition of non-ferrous metals there has been a sharp increase in the use of iron and steel.

Rapid expansion of one material makes the other materials more competitive. When one segment of the economy moves forward strongly, the rest has to move with it to keep up.

As an example, bituminous coal was in the doldrums 18 months ago supposedly because of the inroads of oil and natural gas. Bituminous is now recovering well even though oil and natural gas consumption has increased further.

* * *

COMPETITION IN MODERNIZATION

Many companies sought stepped up amortization of new plants when they saw their competition building new facilities under such tax advantages.

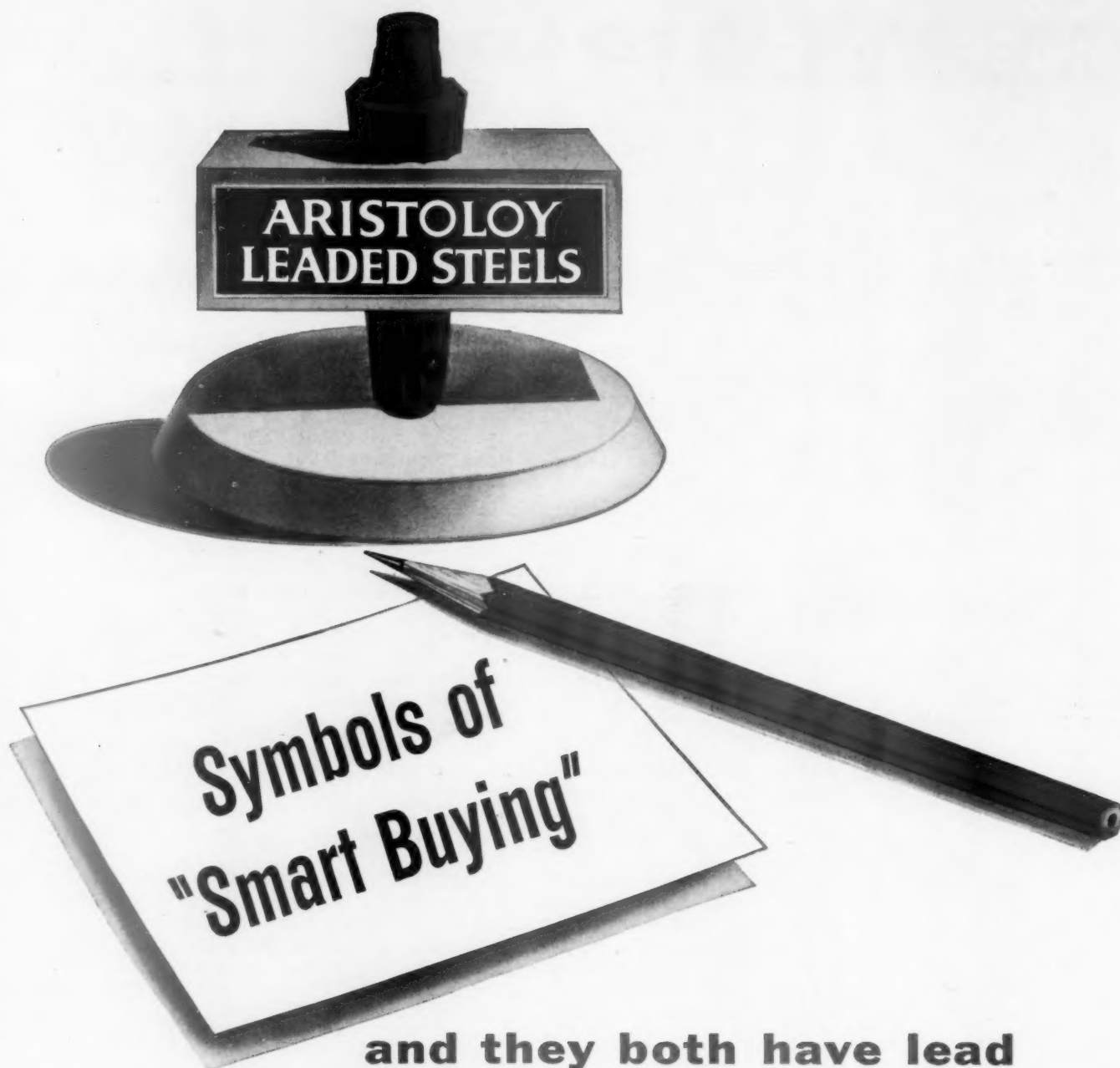
Net result has been the current strong industrial pace and the likelihood of a \$400 billion economy. There is no formula, no exact science, and no reputable forecast.

A year and a half ago economist Colin Clark, one of the leading lights in British economic circles, forecast that U.S. industry and business would shortly fall flat on its face. He said the auto industry then was over-sold and that the housing boom would collapse.

What is apparent is that the Government is trying its hand at some really fine tuning of the economy. There is a general acceptance that our prosperity is based on current payroll, and that to keep business going, the payroll must stay high.

To sustain the pace of business and therefore of employment, the Government is committed to adjust its money and credit policy, and its spending and tax policies. This is not new, but what has been added is a surprising degree of flexibility.

Within months of tightening up housing credit to slow down new starts, thought was given to start it up again. Officials don't want to let the economy unwind itself.



and they both have lead

Today's Purchasing Agent is recognized as part of the executive management team. Why? Because the modern PA, using value analysis, is looking beyond initial cost to specify products that can be purchased to be produced at a profit.

Parts machined from Ledloy* give production line savings.

Freer machining, faster feeds and speeds and longer tool life add value through each manufacturing step.

Because Ledloy cuts clean for finer finish, its use sometimes eliminates final machining.

The end result—a total saving accumulated step by step from rough stock to finished product that makes Ledloy a "smart buy."

*Inland Ledloy License

COPPERWELD STEEL COMPANY / STEEL DIVISION / WARREN, OHIO
For More Information Circle No. 166 on Inquiry Card—Page 17

SPECIAL SERVICE FOR READERS

You will want additional information about the equipment, materials, services or methods described or advertised in this issue of **PURCHASING**.

As a special service, our Reader Service Department will gladly and promptly arrange to have manufacturer's literature regarding any item in this issue sent directly to you.

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READER SERVICE is a monthly feature of **PURCHASING** Magazine designed to help the reader get all the information needed with the minimum of time and effort.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____ CITY _____ STATE _____

Circle numbers of items described or advertised in this issue.

DECEMBER, 1955
(not good after 2-15-56)

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Additional information wanted

catalog files

information for your

WHAT ARE YOUR STEAM REQUIREMENTS?

Packaged steam generators in sizes from 10,000 to 40,000 lb/hr steam, oil or gas fired, are described in a 16-page, illustrated brochure. They are shipped from the factory fully assembled.

Foster Wheeler Corp.

Circle No. 1 on Inquiry Card—Page 17

DRY FLUID DRIVE STARTS LOADS SMOOTHLY

Bulletin A-640 has information about a dry fluid drive, in which the "fluid" is heat-treated steel shot. It starts loads smoothly, avoids overloads and gets 100% efficiency at full loads.

Dodge Mfg. Corp.

Circle No. 2 on Inquiry Card—Page 17

PLANT MOVING PROBLEMS?

The booklet, "Industrial Moving and Special Maintenance," contains information on plant relocation, machine erection, machinery moving, rigging and hoisting and similar moving problems.

The Roger Sherman Transfer Co.

Circle No. 3 on Inquiry Card—Page 17

PROPORTIONAL CONTROLLERS DESCRIBED

A complete line of electric proportional controllers for regulating dew point, pressure, temperature, etc., in batch processes, combustion atmospheres, and furnaces is covered in bulletin 4-11.

The Foxboro Co.

Circle No. 4 on Inquiry Card—Page 17

INSULATION FOR TEMPERATURES —50 F TO 800 F

The physical properties of "Foamglas," a cellular glass insulation for piping and equipment for temperatures from —50 F to 800 F are detailed in 8-page booklet. Specifications are recommended.

Pittsburgh Corning Corp.

Circle No. 5 on Inquiry Card—Page 17

DRIVE CONTROLS TO COMPENSATE FOR VARIABLES

An 8-page bulletin deals with variable speed drives that compensate for variables in products, materials, processes and production volume. Workings of positive pulley design are discussed.

Sterling Electric Motors, Inc.

Circle No. 6 on Inquiry Card—Page 17

CUSTOM-BUILT CONVEYORS

Any business that handles materials will find an illustrated 20-page catalog useful in planning a custom-built conveyor system. Charts tell where and when to use various components.

Lamson Corp.

Circle No. 7 on Inquiry Card—Page 17

FACTS ON ELECTRONIC CONTROLS

Complete with illustrations and circuit diagrams, a 16-page bulletin (EC1) contains non-technical information on the installation, performance and maintenance of basic electronic controls.

Eaton Mfg. Co., Dynamatic Div.

Circle No. 8 on Inquiry Card—Page 17

"3-IN-1" TOOL CUTS MATERIALS HANDLING COSTS

An 8-page, well illustrated catalog describes a materials handling unit which can load, lift or haul materials. A hopper, platform or forklift can be interchangeably attached to chassis.

Kwik-Mix Co.

Circle No. 9 on Inquiry Card—Page 17

ADVANTAGES OF PRINTED CIRCUITRY

Photographs, schematics and tables are used in a 12-page, 2-color bulletin to illustrate the advantages of printed circuitry over conventional wiring methods. The economies are discussed.

National Vulcanized Fibre Co.

Circle No. 10 on Inquiry Card—Page 17

WHERE, HOW TO USE FLEXIBLE METAL HOSE

Application data on flexible hose, made in bronze, carbon steel, monel, nickel and stainless steel are given in catalog No. U-333. They function under varied pressures, high temperatures.

Universal Metal Hose Co.

Circle No. 11 on Inquiry Card—Page 17

STAMPINGS MADE TO ORDER

A 3-color, 24-page brochure supplies illustrations, with specifications of stampings produced for assembly into manufactured products. They include clutch covers, axle housings, etc.

The Crosby Co.

Circle No. 12 on Inquiry Card—Page 17

MOLDED, EXTRUDED RUBBER PARTS

A 12-page, 2-color brochure contains full engineering data on a variety of molded and extruded rubber parts. A table compares relative properties of natural and synthetic rubbers.

Tyer Rubber Co.

Circle No. 13 on Inquiry Card—Page 17

ANCHORING, DRILLING IN MASONRY

Supplied with illustrations and line drawings, catalog No. 5504 (Pocket-size, 60pp) lists anchoring and drilling devices for masonry and hollow walls. Items are numbered for easy ordering.

Star Expansion Bolt Co.

Circle No. 14 on Inquiry Card—Page 17

POWER TOOLS FOR MAINTENANCE

A 48-page manual with over 150 illustrations is a practical guide for industrial maintenance crews in the use of a router, shaper, and power plane, each using an interchangeable motor.

Porter-Cable

Circle No. 15 on Inquiry Card—Page 17

TOOLHOLDERS FOR YOUR CARBIDE INSERTS

The 8-page catalog, GT-293, covers prices and specifications of seven styles of toolholders for throw-away carbide inserts. Technical data are included on the 52 sizes offered.

General Electric, Carbide Dept.

Circle No. 16 on Inquiry Card—Page 17

SPRINGS FOR VARIED USES

Complete illustrated directions for specifying spring are featured in an 8 page brochure. Types and classes of precision springs and other related products are fully described.

Automatic Spring Coiling Co.

Circle No. 17 on Inquiry Card—Page 17

HOSE FOR EVERY USE; ALSO BELTS, LINING

Specifications of 68 different rubber hose for every industrial use are presented in an 8-page catalog. There are also data on 9 conveyor belts, 7 transmission belts, chute lining, etc.

Thermoid Co.

Circle No. 18 on Inquiry Card—Page 17

HOW DO YOU SELECT V-BELT DRIVES?

The 74-page booklet, Tex-Book 20P40, carries handy multi-color tables for selecting constant-speed V-belt drives. It also contains technical data on sheaves, and basic drive principles.

Allis Chalmers Mfg. Co.

Circle No. 19 on Inquiry Card—Page 17

MAGNETIC PULLEYS FOR MANY JOBS

Bulletin No. 303-C, dealing with magnetic pulleys and pulley separators, includes a simplified selection method, making it easy to select the right size pulley for a job. 2-coil pulleys are listed.

Stearns Magnetic, Inc.

Circle No. 20 on Inquiry Card—Page 17

GREATER PRESS ROOM EFFICIENCY

Several new press room equipment items for increased production are listed, with specifications, in a 20-page illustrated booklet. These include roll feeds, scrap choppers, coil cradles, vises, etc.

Durant Tool Supply Co.

Circle No. 21 on Inquiry Card—Page 17

WHAT TO LOOK FOR IN SPRINGS

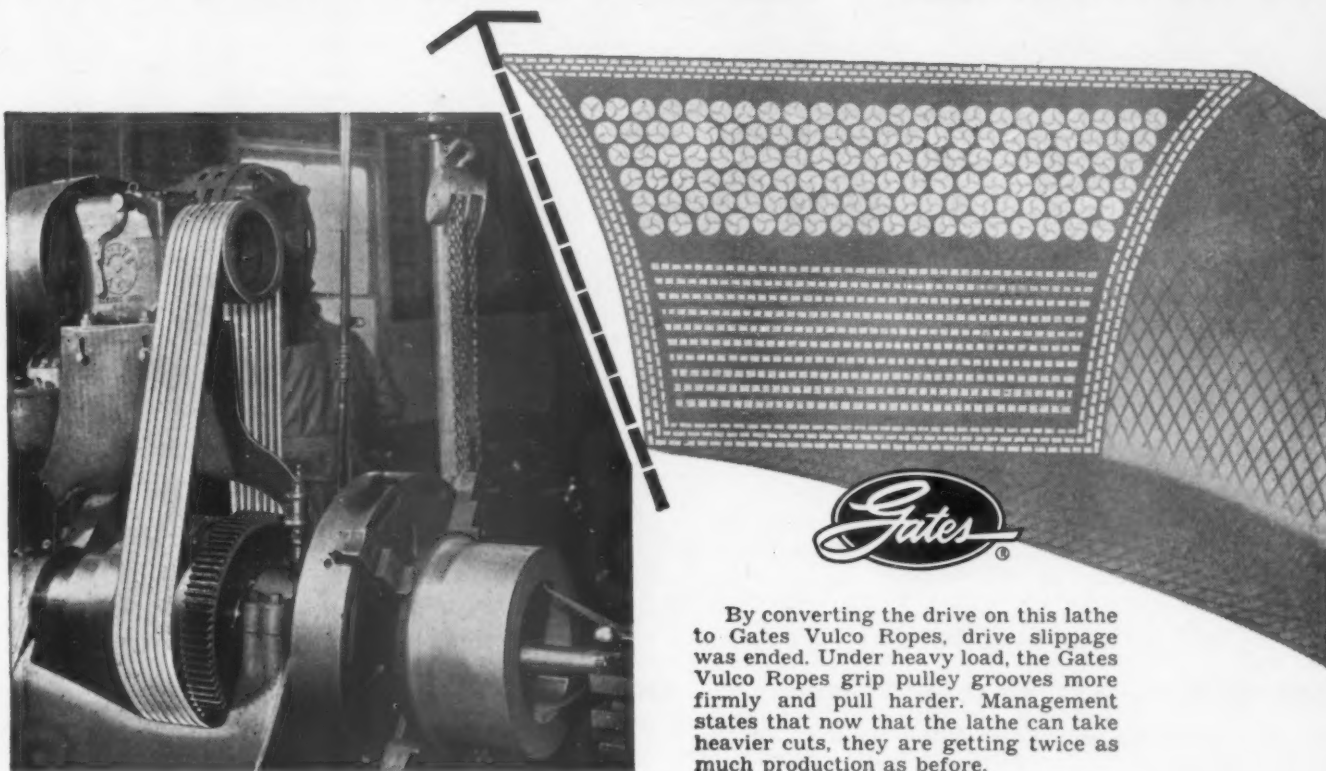
A profusely illustrated, 24-page, 2-color brochure highlights manufacturing methods and applications of springs in modern manufactured equipment. It describes correct specifying methods for user's needs.

The Reliable Spring and Wire Form Co.

Circle No. 22 on Inquiry Card—Page 17

**Circle Card Opposite Page 17
to Obtain These Catalogs
Additional Catalogs on Page 20**

"Secret" of lower belt costs is concave sides



By converting the drive on this lathe to Gates Vulco Ropes, drive slippage was ended. Under heavy load, the Gates Vulco Ropes grip pulley grooves more firmly and pull harder. Management states that now that the lathe can take heavier cuts, they are getting twice as much production as before.



Plants that keep track of costs on drives know this: they get longer wear at *lower cost per year of service* when they specify Gates Vulco Ropes—the V-Belts with *concave sides*.

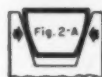


Here's WHY concave sides keep belt costs down:

When the Gates belt is bent around the sheave, the *precisely engineered* concave sides (Fig. 1) fill out and become straight (Fig. 1-A). Thus the belt makes uniform contact with the sides of the pulley.

This full, uniform contact assures *even distribution of wear*. Naturally, *even wear* means *longer wear*. And longer wear cuts belt replace-

ment costs...reduces down time...contributes to profits.



Prove to yourself the value of concave sides

Bend a straight-sided belt (Fig. 2) and feel the sides *bulge out* around the bend. You see immediately that the bulging sides prevent an even fit in the pulley groove (Fig. 2-A). Uneven contact causes faster wear...increases belt replacement costs.

Reduce costs and down time for belt replacements—specify Gates Vulco Rope Drives—the V-Belt with *concave sides* (U.S. Patent 1813698). The Gates Rubber Co., Denver, Colorado—*World's Largest Maker of V-Belts*.

Gates Engineering Offices and Distributor Stocks are located in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

TPA 46-A

GATES VULCO ROPE DRIVES

catalog files

PLASTIC FABRICATIONS

Welding and spraying equipment, moldings, weldments and component parts for welded fabrications, made from various types of polyethylene or from unplasticized PVC, are covered in a condensed catalog.

American Agile Corp.

Circle No. 23 on Inquiry Card—Page 17

SEALS TO RESIST CHEMICALS, ABRASIVES

Catalog MS-9-54 deals with rotating mechanical seals for pumps and agitator shafts, handling acids, alcohols, alkalies, hydrocarbons, abrasive and tarry materials. Cut-away sections are shown.

United States Gasket Co.

Circle No. 24 on Inquiry Card—Page 17

SELECTING BELLOWS, METAL HOSE

Compiled to assist in the selection of the proper bellows or flexible metal hose for a particular application, catalog No. 150 (16 pp, 2-color) shows typical applications in line form.

Flexonics Corp.

Circle No. 25 on Inquiry Card—Page 17

THESE BEARINGS ARE SMALL BUT STURDY

Over 500 standard radial ball bearings (ranging from .0250" to .2500") are tabulated by bore size in a 3-color, 24-page catalog. High load capacities meet current miniaturization trends.

Miniature Precision Bearings, Inc.

Circle No. 26 on Inquiry Card—Page 17

WHERE ALUMINUM ALLOYS CAN BE USED

A 6-page brochure, printed in 3-colors, and indexed for ready reference, explains in detail the fabricating characteristics, applications and available sizes of commercial aluminum alloys.

Peter A. Frasse & Co., Inc.

Circle No. 27 on Inquiry Card—Page 17

LIFTING HEAVY LOADS?

The many possible combinations of standard wire rope fittings and assemblies are discussed in a 24-page catalog (TL 500). A section deals with rope assemblies for exacting requirements.

American Chain & Cable Co., Inc.

Circle No. 28 on Inquiry Card—Page 17

USE OF WAX IN DRAWING, FORMING

The benefits of wax in metal forming are described in a new booklet. It explains the unusual lubricity of wax under pressures as high as 200,000 psi and temperatures in excess of 450°.

S. G. Johnson & Son, Inc., Industrial Products Dept.

Circle No. 29 on Inquiry Card—Page 17

ECONOMIZE ON STORAGE SPACE

A 32-page, illustrated, 2-color catalog deals with flexible steel shelving. It illustrates 24 different units and offers information on planning a space-saving steel shelving layout.

The Burroughs Mfg. Co.

Circle No. 30 on Inquiry Card—Page 17

CHANGING TOOLS IN SECONDS

Catalog No. 55, replete with illustrations and line drawings, lists with specifications a line of quick-change holders and adaptors for end mills, shell and face mills, drills, reamers, etc.

Beaver Tool & Engineering Corp.

Circle No. 31 on Inquiry Card—Page 17

WHAT LAMP BALLAST TO BUY

An 8-page buyer's guide gives technical data and operating characteristics for over 180 fluorescent lamp ballasts. They suit preheat, rapid start, quick start, slimline and circline lamps.

Advance Transformer Co.

Circle No. 32 on Inquiry Card—Page 17

HOW TO SELECT, OPERATE ROD PARTERS

A 16-page fully illustrated manual points out the many different types of stock that can be handled by various rod parters. Included are cold rolled steel, chrome molybdenum, brass, etc.

O'Neil-Irwin Mfg. Co.

Circle No. 33 on Inquiry Card—Page 17

SPECIALTY ALLOYS, FLUXES DESCRIBED

Fifteen alloys not previously described are covered in a 32-page, pocket size book. It condenses into ready reference form data needed by buyers of specialty alloys and fluxes for any job.

All-State Welding Alloys Co., Inc.

Circle No. 34 on Inquiry Card—Page 17

LEARNING ABOUT TOOL STEELS

Written for the "non-metallurgist," a 44-page book presents a practical understanding of tool steels without over-technical treatment. All 6 basic tool steels are covered, with uses.

Crucible Steel Co. of America

Circle No. 35 on Inquiry Card—Page 17

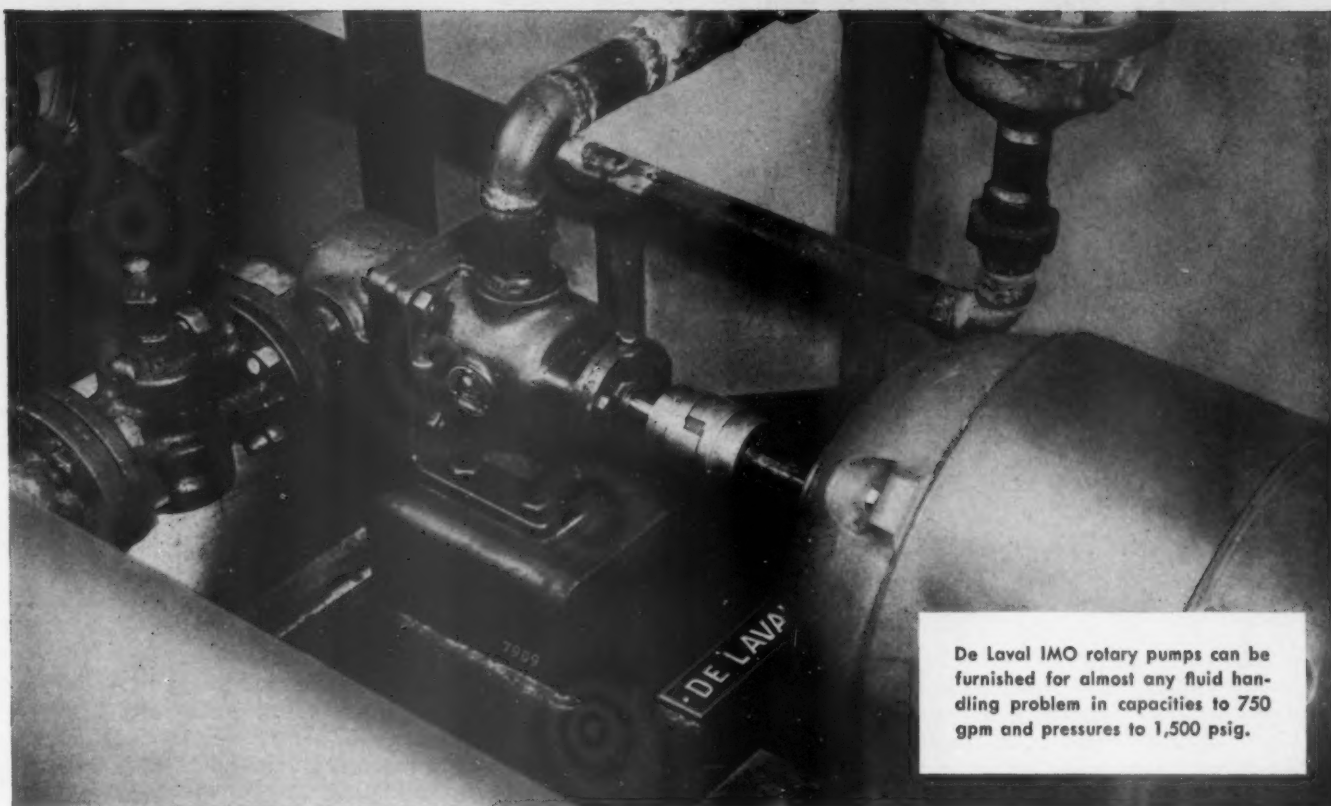
CHECK POINTS FOR BUYING CASTINGS

Catalog No. 55, fully illustrated, deals with the considerations that should be given most weight when buying castings. It emphasizes the importance of quality control of materials throughout production.

Urick Foundry Co.

Circle No. 36 on Inquiry Card—Page 17

**Circle Inquiry Card Opposite Page 17
to Obtain These Catalogs**



De Laval IMO rotary pumps can be furnished for almost any fluid handling problem in capacities to 750 gpm and pressures to 1,500 psig.

What to Look for in a Rotary Screw Type Pump

By W. J. MONGON, Assistant Chief Engineer
De Laval Steam Turbine Company

A sound knowledge of design, and how it affects performance, is the best insurance a buyer can have that he will get the pump he needs. This brief analysis of the IMO, a rotary three-screw pump manufactured by the De Laval Steam Turbine Company, will give you some of the necessary facts.

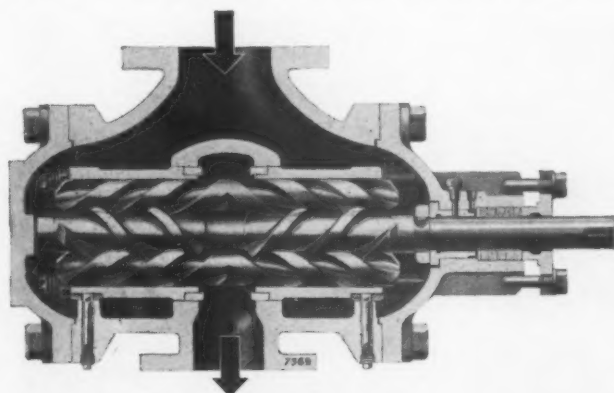
What qualities should you look for in a rotary type pump? It must, of course, meet specified capacities and pressures. But, it must also be efficient, operate quietly, stay on the job.

The axial flow of a screw type pump, and the resulting low inlet losses for any given pump speed, are important

benefits that should be considered in making pump selections. The absence of timing gears and other mechanical features of construction also enable the De Laval IMO pump to operate at direct-connected motor and turbine speeds . . . to handle viscous liquids and high suction lifts.

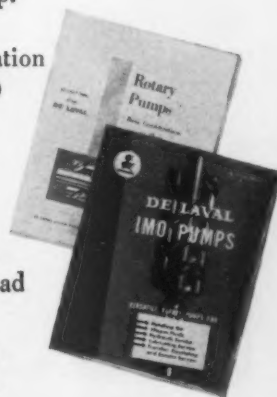
One of the most important features of the IMO pump is the hydraulic turning of the idler or sealing rotors. The central or power rotor is the pumping element; the liquid pumped turns the sealing rotors.

A screw type pump is well suited for applications where pulsation-free flow is desirable. The axial flow of the liquid without trapping and the unique thread form which keeps closures fluid-tight contribute to quiet operation of the IMO pump.



De Laval IMO Series A322A, a positive displacement, rotary screw type pump, can handle capacities to 750 gpm and pressures to 150 psig.

Catalog LS gives useful application and specification data on the IMO pump. An article titled, *Rotary Pumps, Basic Considerations in Their Application*, contains a description of rotary pumps in general. For these publications, write on your company letterhead to De Laval Steam Turbine Company, 807 Nottingham Way, Trenton 2, New Jersey. DL-301



suppliers

in the news

Organization of the Heating and Air Conditioning Division of the recently-formed **National-U. S. Radiator Corp., Johnstown, Pa.**, has been completed. Departmental managers are: R. S. Doherty, manager of packet and Super-Pak sales; H. J. Muhlitner, manager of heating accessories, assisted by W. C. Callihan; S. Moroch, manager of the air conditioning and warm air section, with W. H. Schanhite in charge of distribution; R. O. Shelly, manager of finned surface heating products; and J. P. Bird, chief of sales and price analysis, assisted by D. A. Hamilton and A. J. Ellerbrun.

William C. Russell has been made general manager of the St. Louis division of **Joy Mfg. Co., Pittsburgh**. He assumed responsibility for engineering, manufacturing and sales of products which consist primarily of fittings, connectors, and electrical equipment for mining and general industries.



W. C. Russell

The following appointments at the Cleveland steel service plant of **Joseph T. Ryerson & Sons, Chicago**, have been announced. Homer E. Rieker is now manager of sales. His successor as manager of tubular products and cold finished steel bars is William B. Hawk. Mr. Hawk, formerly a sales representative in Columbus, O., is succeeded by John V. Burley, Jr.

United States Plywood Corp., New York, has moved its sales headquarters of the Flexible Materials Division to Louisville, Ky. Warren E. Poitras, formerly sales manager of the division, is now division manager.

The appointment of Robert C. Baumgartner as general sales manager of the **Oster Mfg. Co., Cleveland**, manufacturers of pipe and bolt threading machinery, has been announced.



R. C. Baumgartner

Mastro Plastics Corp., New York, has announced that Harold J. Kolenski, former sales manager, is now a member of the board of directors and is also vice president in charge of sales.

Albert W. Lange has been appointed sales representative in the New York City area for the industrial division of **Henry Disston & Sons, Inc., Philadelphia**, tool and steel manufacturer.

Engelberg Huller Co., Inc., Syracuse, has named Glenn D. Swander as sales engineer for the southeast territory. He will cover Virginia, Florida, Alabama, Georgia, and North and South Carolina.

Truman Jones has been appointed vice president in charge of sales by **DeWalt Inc., Lancaster, Pa.** He had been general sales manager.



Truman Jones

Performance-- Value...



FIG. 2608—Bronze Full Flow Globe Valve for 200 Pounds W.P.

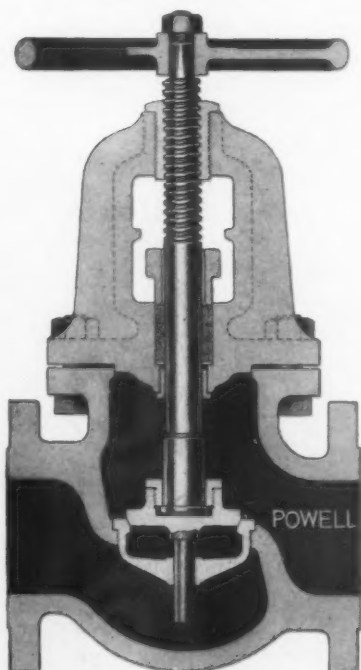
FIG. 1561—150-Pound Steel Swing Check Valve.

... POWELL VALVES ... THE COMPLETE QUALITY LINE ... POWELL VALVES ...

FIG. 375—Bronze Gate Valve for 200 Pounds W.S.P



FIG. 1531 (Sectional)—150-Pound Steel Globe Valve.



Powell Valves

You can depend on outstanding *performance* from every valve made by The Wm. Powell Company, for Powell Valves have a proven record of long life and dependable service.

And Powell Valves give you better *value*! They're precision made and incorporate many

quality features—features that can save you money and give you lasting flow control.

Consult your Powell Valve distributor. If none is near you, we'll be pleased to tell you about our *COMPLETE quality line*, and help solve any flow control problem you may have.

The Wm. Powell Company, Cincinnati 22, Ohio 109th year

For More Information Circle No. 169 on Inquiry Card—Page 17

suppliers

Joy Mfg. Co., Pittsburgh, has announced the following appointments. Herman Van Houten, former staff specialist and special representative for the Pittsburgh executive sales department, is now sales manager, renewal parts. R. T. Hair, until recently manager of service on all company products, has been named manager, continuous miner and loader products. Earl Bradley, former special demonstrator, coal machines, is now manager, shuttle car products.

William M. Robertson has been appointed sales representative in New York by **Wolverine Tube, division of Calumet & Hecla, Inc.,** Detroit. Also, William Bothwell has assumed new responsibilities in the Aluminum Department of **Wolverine Tube.**

Hamilton Associates, Indianapolis, has been made a representative for **American Agile Corp., Cleveland.** They will cover Indiana and the northern part of Kentucky.

Peter B. Davies has been named sales manager of **Philadelphia Gear Works.**

J. H. Williams & Co., Buffalo, has named Charles T. Voyles as the company's sales representative for southeastern Illinois, southern Indiana, northern Kentucky, and the Cincinnati area.

The appointment of Joseph Solari as general sales manager of the Components Division, has been announced by **Federal Telephone and Radio Co., Clifton, N. J.**

Additional "Suppliers in the News" will be found following the Industrial Development section.

Allegheny Ludlum Steel Corp., Pittsburgh, has announced new sales appointments. Neale Carter has been appointed to the Birmingham district sales office and will handle all products in that area. And, Walter W. Armstead, Jr., has been assigned to the Indianapolis office, where he will be connected with tool steel sales.

David H. Rose has been named a representative in northern California and Nevada by the **Rectifier-Capacitor Division, Fansteel Metallurgical Corp., N. Chicago.**

L.O.F. Glass Fibers Corp., Toledo, has named William M. Temple as manager of government sales. He will headquarter in Washington, D.C.

William Henley has been made a manufacturer's representative by **Barry Controls Inc., Watertown, Mass.** He will handle Barry shock and vibration isolation equipment in Tennessee, Mississippi, Georgia, Alabama, Florida, North Carolina and South Carolina.

New district sales manager for two southern areas have been announced by **Delta Power Tool Div., Rockwell Mfg. Co., Pittsburgh.** U. E. McCarty, north Texas district sales manager for the past three years, is now sales manager for a district including most of Georgia, the Carolinas, eastern Alabama and eastern Tennessee. John M. Bannon, Jr., succeeds Mr. McCarty in Texas.

The Wiremold Co., Hartford, Conn., has appointed Robert C. Hill as sales representative in New York, eastern Pennsylvania, and part of New Jersey.

The Synthetics Department, Hercules Powder Co., Wilmington, Del., has named Frank G. Oswald to the newly created post of manager of new products sales.

William H. Harris is now assistant to Paul E. Fenton, vice president in charge of manufactured sales, of **Scovill Mfg. Co., Waterbury, Conn.**

Lamson Mobilift Corp., Portland, Ore., has named Ivan E. Howard as district manager of the Cleveland office. He will be in charge of sales and services of the firm's complete line in western New York,



I. E. Howard

western Pennsylvania, Ohio, Kentucky, West Virginia and Michigan.

W. H. Collins has been made northeastern district sales manager



W. H. Collins

for **Trent Tube Co.,** a wholly-owned subsidiary of **Crucible Steel Co. of America, Pittsburgh.**

The appointment of Hale L. Dant as southern division manager has been announced by **Permacel Tape Corp., New Brunswick, N. J.** Mr.



H. L. Dant

Dant will headquarter in Atlanta and cover activities in North and South Carolina, Georgia, Florida, Alabama, and eastern Tennessee.

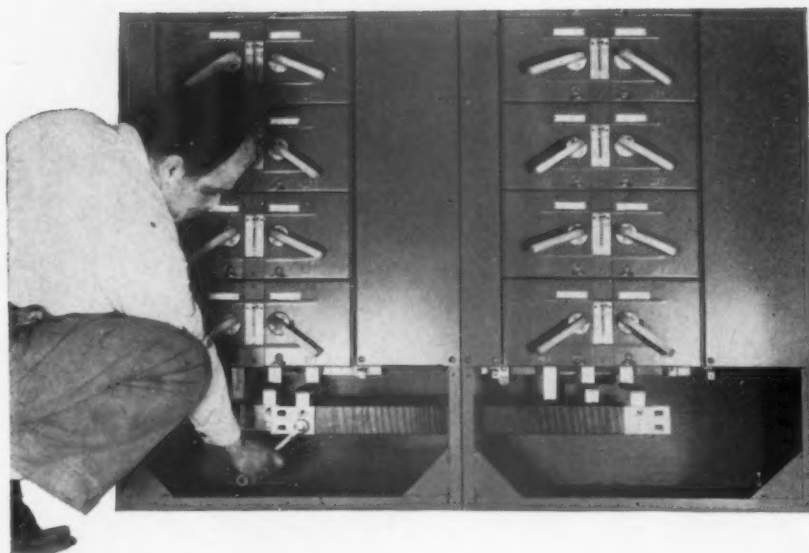


ADD CAPACITY WHENEVER YOU NEED IT! So simple. Just attach another section. And be assured you're using the best. The Unit-Versal Switchboard is the only one you can get with famous Vacu-Break switch units to smother arcs, decrease maintenance.

BULLDOG UNIT-VERSAL VACU-BREAK SWITCHBOARD

Tailors Itself

to today's and
tomorrow's
power requirements



INSTALLS, EXTENDS, CONVERTS WITH ONLY A WRENCH AND A SCREWDRIVER!

What is adequate today may be inadequate tomorrow. But this need not be true in switchboards. For BullDog—pioneer in electrical distribution—has developed and perfected the Unit-Versal Vacu-Break® Switchboard.

It is the one, low-cost unit of its kind that permits you to *add, remove or change* switches and breakers simply and easily. Or double, triple, or quadruple the branch-circuit capacity of the switchboard itself by just attaching standardized

sections. Also, its design is so simple, you can install, extend or convert it swiftly with only a wrench and a screwdriver.

Look into BullDog's safe, efficient Unit-Versal Switchboard. For that matter, check all of BullDog's advanced electrical products. BullDog Field Engineers will be happy to lend you a hand from planning to installation. No obligation, of course. Write BullDog Electric Products Company, Detroit 32, Michigan.

© BEPCO

IF IT'S NEW
... IF IT'S DIFFERENT
... IF IT'S BETTER ... IT'S

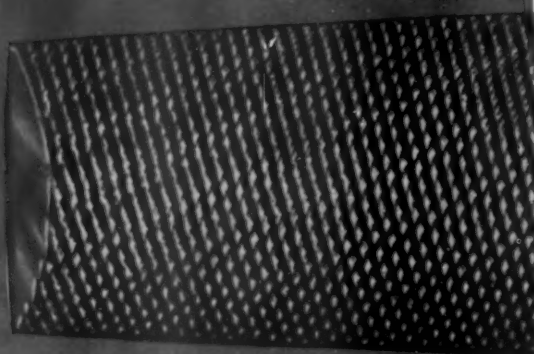


BULLDOG

ELECTRIC PRODUCTS COMPANY
A Division of I-T-E Circuit Breaker Company

Export Division: 13 East 40th Street, New York 16, New York. In Canada: BullDog Electric Products Company (Canada), Ltd., 80 Clayson Road, Toronto 15, Ontario.

rolling action
is designed
right in



HELLER *spiral-cut* half round files

Smooth, even finishes are easier with Heller Spiral-Cut Half Round Files. Ordinary half round files require a skillful twisting. Heller engineering has removed this human element from good file performance. The necessary rolling action is designed right into the Heller Spiral-Cut Half Round File. This new cutting principal is typical of Heller's continuous search for better files. By constantly testing, inspecting, improving . . . Heller guarantees file users "the best."




HELLER TOOL CO.

A Subsidiary of Simonds Saw and Steel Company

NEWCOMERTOWN, OHIO . . . Branch Offices — New York, Chicago, Detroit, Los Angeles

YOUR HELLER DISTRIBUTOR CAN SUPPLY ALL YOUR FILE NEEDS



LIGHTen Your Cost-Load Switch to AMERICAN PHILLIPS SCREWS

for Assured Savings on Any Assembly

Just the simple job of putting protective covers on your switch-plates is enough to prove the basic Phillips savings . . . which can be multiplied in your plant's production departments.

First, you get automatically straight driving . . . with no fumbling, wobbling, or dropping of screws. And what you *don't* get are any scarred work-surfaces or injured workers. All of which adds up to as much as 50% time-savings over out-dated methods . . . and plainly proves that *Phillips Screws always cost least to use.*

Now add the special advantages of *American Phillips Screws* . . . an always dependable supply from one of the screw industry's top-production plants . . . unlimited range of standard and special Phillips fasteners . . . acknowledged engineering leadership based on know-how plus follow-through . . . and you can clearly light your own way to making your assembly operations more productive and less costly than with any other fastening method. Write:

X marks the spot . . .
the mark of extra quality

AMERICAN SCREW CO.

PHILLIPS HEADquarters
WILLIMANTIC, CONNECTICUT

Plants at Willimantic, Conn. and at Norristown, Pa.
Warehouse and office at Chicago
Office, Detroit, Michigan



For More Information Circle No. 172 on Inquiry Card—Page 17

ULBRICH
Stainless Steels

THIN GAUGE

The **BIGGEST** Little
Converting Mill
in the Country

EDGE ROLLING

Specialists in small
orders—a foot or
a pound and up

SLITTING

STRIP·Flat Wire
converted
to your exact
requirements

Complete Inventory—
Delivery from Stock



ULBRICH
Stainless Steels
Established 1924
WALLINGFORD · CONN.
Wallingford CO. 9-7771

For More Information Circle No. 173
on Inquiry Card—Page 17

f.o.b.

• • **filosofy of buying**

THE tremendous variety and range of color combinations in the new automobiles has given one resourceful purchasing agent a money-saving idea. City P. A. Wayne Harvey of Lincoln, Nebraska, is reported as figuring out a color code for the city car pool, based on factory delivered units, that will be distinctive, standard, and save the re-paint jobs that have frequently been necessary for identification in previous purchases.

BUT if color variety makes things rosier for the customer-buyer, it is adding to the headaches of the manufacturer's P.A. We note in an item reporting on the purchase of an "electronic brain" at Buick Motors that it "has been obtained as an aid in handling the complex work of Buick's purchasing and scheduling departments. One of the first problems it will receive will be figuring the variations with the many color, trim, and accessory options available to Buick buyers." One of the company engineers has estimated (without benefit of the electronic brain) that Buick could go on making cars at the present rate of 700,000 a year for more than three years and never make two exactly alike—and this in an industry that has traditionally been held up as the outstanding example of mass production.

A HOBBY turned to useful community service is that of P.A. Don Graves, American Chrome Co., Nye, Montana. Graves is a radio "ham". Identified on the air waves

by the call letters W7VZN, he is one of that numerous brotherhood of amateur operators whose self-powered stations have often kept communications open during power failures, when telephone and telegraph wires are down, and when communities are isolated by floods and other disasters. He has been named by the American Radio Relay League as Emergency Coordinator for his district, responsible for organizing amateur operators for mobilization in an emergency, setting up procedures, outlets and relay points for communication with other districts, maintaining liason with the Red Cross and other relief agencies, as well as with local protective services and civil defense centers. The ARRL Emergency Corps has a nationwide net work for this purpose.

GOOD public relations and good purchasing go hand in hand—but neither, alone, can take the place of the other. One evening a few weeks ago, a new locomotive on one of the New Haven Railroad's commuter trains broke down. Traffic backed up, and presently several trainloads of tired and hungry homeward-bound commuters were tied up in a long delay. Envisioning the wrath of the disgruntled customers, the public relations people got busy fast and worked far into the night. The next morning, the city-bound commuters found on each seat a dissertation entitled "A Drop of Solder", explaining the cause of the delay—the complicated mechanism of the big locomotive, and how a loose drop of solder in the wiring

system had fallen out of place, short circuiting the engine. It was, they further explained, "just one of those things", and obviously impractical to track down every loose bit of solder in every locomotive. The commuters, they suggested, would understand and forgive. But their pride in this prompt bit of public relations work was short lived. One of the sheets was returned with a brief pencilled notation:

"This sounds to me like pretty sloppy locomotive purchasing."

• •

FOR the past several months we have been observing, from our office window, the rising of the world's largest stainless steel skyscraper—the 5-story Socony Mobil Building now nearing completion diagonally across the street corner. At a recent luncheon meeting, the 42nd Street Mid-Manhattan Association, representing commercial and civic interests in this area, presented a unique award to the Stainless Steel Industry of America commemorating "the dawn of a new age—the stainless steel age of building." The citation went on to say: "We can thank the technology and ingenuity of the stainless steel industry for giving us a superb building material that not only is virtually impervious to city dirt and grime, but is actually a building cosmetic that assures beauty and grace, and might even be called the long-sought fountain of youth for buildings, since it is immune to all of the normal aging processes." The award was accepted on behalf of the industry by the Committee of Stainless Steel Producers, American Iron and Steel Institute.

• •

CENTRALIZED purchasing has been an issue in many a local political campaign this fall. It remained for the League of Women Voters of Binghamton, N. Y., to get all the candidates on one side of the issue. LWV queried all five candidates for the post of county supervisor as to their views on appointing a county P.A., and made their answers a matter of public record by publishing them in the local press. Every one of them professed enthusiasm for the plan as part of a businesslike administration. No matter who wins in the election, it should be a victory for centralized purchasing.

DECEMBER, 1955

A PIN IS A GIANT

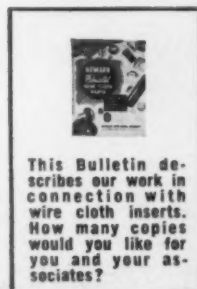
by Comparison

Here's an excellent example of our ability to handle *tiny* wire cloth insert assemblies on a production basis. Of the three pieces involved:

- a** we punched out the tiny circular pieces of 100 mesh stainless steel cloth.
- b** we punched out the silver solder rings.
- c** we purchased on buyer's specifications the stainless steel recessed parts.
- d** assembled unit.

And to produce this tiny assembly we developed a unique method of induction brazing, necessary to get high production rates in the brazing operation.

We've fabricated many large insert pieces, some several feet across; also countless medium sized parts. We thought you might be interested in the type of work we do in the 'miniature' field. However, no matter the size or shape of the part you want assembled with a wire cloth insert, we shall be glad to carry it all the way through... help in design, best method of inserting, quote and produce.



NEWARK
for ACCURACY

A complete line of woven wire cloth and wire cloth parts in all malleable metals.

Send for Catalog E

Newark

Wire Cloth

COMPANY

351 VERONA AVENUE • NEWARK • NEW JERSEY

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John O. Gantner, Jr., President of Gantner of California, reveals why

"She always has the last word!"

"They say a woman will always have the last word. It's certainly true when she shops for a swimming suit!

"She waits till the last possible minute, and insists she get the 'last word' in style. Pressure on stores is terrific. If 'hot' styles run out of stock, those sales are gone forever.

"But our retail accounts know they can depend on Gantner.

"Gantner styles can be restocked to any store in the country in a few hours, *while the ads are running*. Not a moment is lost — not a sale is lost — thanks to Air Express!

"And one last word — about costs. Specifying Air Express can save you money, too. 15 lbs. from San Francisco to Chicago, for example, costs \$10.91. That's \$1.09 less than any other complete air service!"



Air Express



GETS THERE FIRST via U.S. Scheduled Airlines

CALL AIR EXPRESS . . . division of RAILWAY EXPRESS AGENCY

For More Information Circle No. 175 on Inquiry Card—Page 17

NOW...it's 5 to 9!



Asarco now offers continuous-cast bronzes in 32 new sizes from 5 inches to 9 inches in diameter, supplementing established sizes up to 5 inches in diameter.

You can buy Asarcon Bronzes cored or solid *in the exact length you need*. You pay for no short-end scrap because there are none of the remnants you get from conventional 12-inch or 13-inch lengths.

Diameters of Asarco Continuous-Cast Bronzes now range from $\frac{1}{2}$ inch to 9 inches in any size you need . . . many

foundry alloys and a variety of shapes are available in all of these sizes. The famous "Asarcon 773" Bearing Bronze (SAE 660) can be shipped promptly from stock.

All bronzes produced by the patented Asarco continuous-cast process are metallurgically superior. There are no blow-holes or porosity, no dross or dirt inclusions.

Write to us for more details, or get in touch with your nearby distributor of Asarco Continuous-Cast Bronzes.



AMERICAN SMELTING AND REFINING COMPANY

Perth Amboy Plant, Barber, New Jersey • Whiting, Indiana

WEST COAST SALES AGENT: Kingwell Bros. Ltd., 457 Minna Street, San Francisco

IN CANADA: Federated Metals Canada, Ltd., Toronto and Montreal

For More Information Circle No. 176 on Inquiry Card—Page 17

A penny saved is a penny earned — *maybe!*

Any businessman knows that
saving a few pennies here
can cost a few dollars there.

We've all seen it demonstrated time and again—an inferior product that won't do the job can wind up costing money. As a matter of fact, this old business axiom is being proved in many company washrooms right now.

If the washroom is stocked with low-priced paper towels that go to pieces when wet . . . or if the towels are too stiff to soak up water . . . *then they're not saving a cent.* People will grab a fistful of such towels every time they wash up.

You can expect lower consumption with a quality towel

ScotTissue Towels are not the lowest priced towel on the market, but *one ScotTissue dries two hands.* People don't have to reach for a second towel. This means consumption is lower—and so are your towel bills.

The ScotTissue Towel combines many qualities—such as fast absorbency, wet-

strength, stretch, softness and whiteness—which mean much more towel for your towel-buying dollar.

Scott boosts employee morale

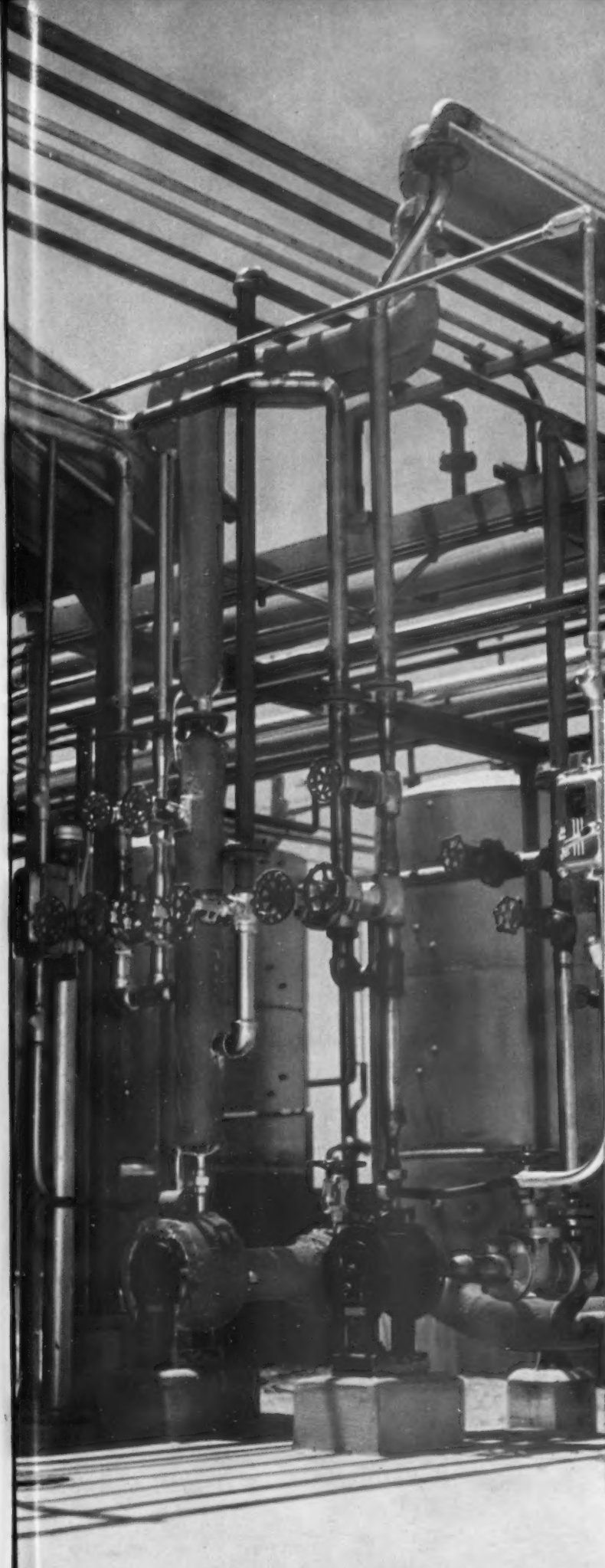
People buy more Scott products for their own use than any other brand. So naturally it's the brand they like to see provided where they work. According to a recent survey, good washroom facilities are one of the four main essentials for good employee relations.

Your nearest Scott representative can tell you why ScotTissue Towels will give you lowest towel consumption, greatest employee satisfaction, and lowest towel costs, all things fairly considered. Also, Scott offers a "Planned Poster Program" which you will find helps to cut down consumption, and promote cleanliness in your washrooms. This program can be yours without obligation—write to Scott Washroom Service®, Scott Paper Company, Dept. **P-12**, Chester, Pa.

It's good business to use

SCOTTISSUE® TOWELS





Red light for contamination

Hungry organic acids used at Newport Industries' Fine Chemical plant in Pensacola, Florida are stopped in their tracks by the Aloyco valves in this picture.

Made of an alloy so tough it can't be corroded, these valves prevent costly contamination of the fine chemicals and eliminate frequent valve replacement.

Newport picked Aloyco valves for still another reason. They knew these versatile valves could handle other chemicals *at any time*—assuring unusual flexibility for the plant.

Now you know why so many leaders in the chemical field specify Aloyco corrosion-resistant valves. Alloy Steel Products Co., Inc., 1301 West Elizabeth Ave., Linden, N. J.

5.8



Stainless Steel



Fastenings that defy corrosion

- Stronger in tensile
- Higher in yield strength
- Higher in nickel content
- More corrosion resistant
- Engineered to highest standards
- Shipped in strong, neatly labeled packages

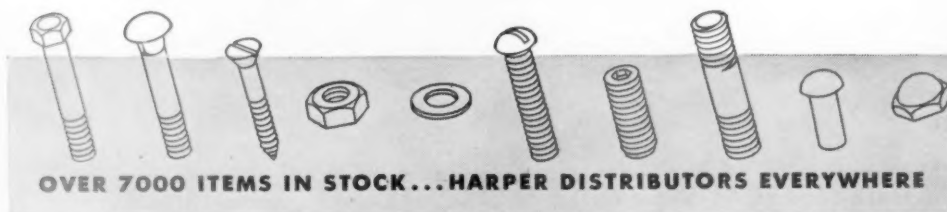
Specialists in all corrosion-resistant fastenings

Bolts • Nuts • Screws • Rivets • Washers
of Brass • Bronze • Monel • Aluminum • Stainless

Harper stainless steel bolts, screws, nuts, washers and rivets are the answer to many fastening problems where corrosion is a factor.

No additional cost for these Harper advantages of longer life and improved appearance for the equipment you manufacture. See your Harper Branch or Distributor or write for Catalog 26.

THE H. M. HARPER COMPANY
8222 Lehigh Avenue, Morton Grove, Ill.



OVER 7000 ITEMS IN STOCK...HARPER DISTRIBUTORS EVERYWHERE



Everlasting Fastenings



"CITIES SERVICE STAMPED OUT 25% OF DIE MAINTENANCE LABOR COSTS"

"Increased tool life 50%, lowered production costs," says the Toledo Pressed Steel Company.

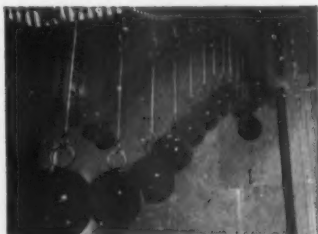
Fabricating 600 to 700 tons of steel per month, Toledo Pressed Steel is one of the largest stamping companies in Toledo, Ohio. From its 78 punch and draw presses, ranging from five to 500 tons, come truck flares, road construction torches, radio and television parts, and stampings for the automotive industry.

Volume operation? You bet! . . . the kind where the right lubrication makes a big mark in the profit column. And the right lubrication for Toledo Pressed Steel has been Cities Service Lubrication.

Says Plant Manager Walter Baird: "We have been

using Cities Service drawing oils for nine years on all drawing and stamping operations. Previously we used several different compounds. But now with Cities Service drawing oils, we have increased tool and die life 50%, which, of course, has lowered production costs. In addition, they have reduced die maintenance labor costs about 25% compared to our former oils, and offer the bonus of easy removal from stampings where plating is necessary."

A Cities Service Lubrication Engineer can help you achieve similar results in your operation. Why not call him in. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.



Road Construction Torches are one of the many products of Toledo's 78 punch and draw presses. These torches cost less to produce due to firm's use of Cities Service drawing oil.



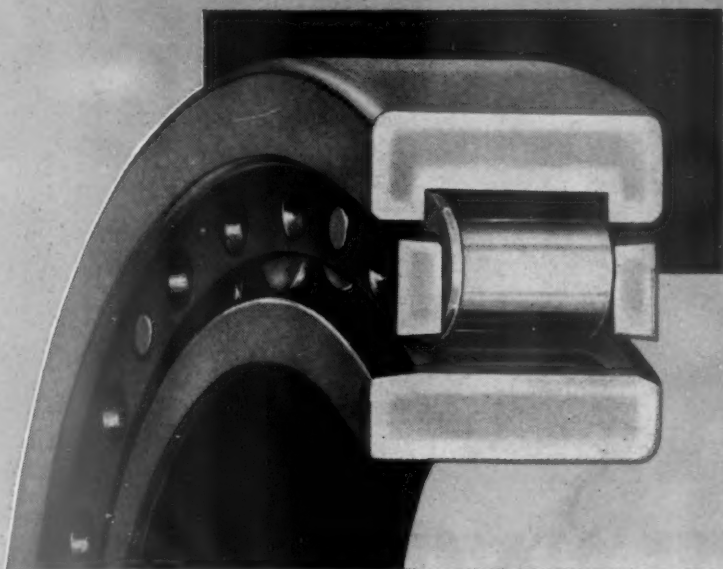
Plant Manager Walter Baird with some of company's products . . . construction flares, metal stampings for automotive manufacturers and numerous radio and television parts.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

For More Information Circle No. 180 on Inquiry Card—Page 17

Bower straight roller bearings carry maximum loads!



**TWO-LIP
RACE
INCREASES
RIGIDITY—
IMPROVES
ROLL
ALIGNMENT**

Examine the cutaway view of the Bower straight roller bearing, shown above. It is important to note particularly the two parallel lips made integral with the outer race. These lips or shoulders provide a rigid, durable construction—keeping the rolls in proper alignment.

Built of highest quality materials, Bower straight roller bearings have proved themselves capable of standing up day in and day out under maximum loads and the most rugged conditions—with virtually no maintenance whatsoever. They are used extensively in such fields as automotive, earthmoving, farm equipment and heavy machine

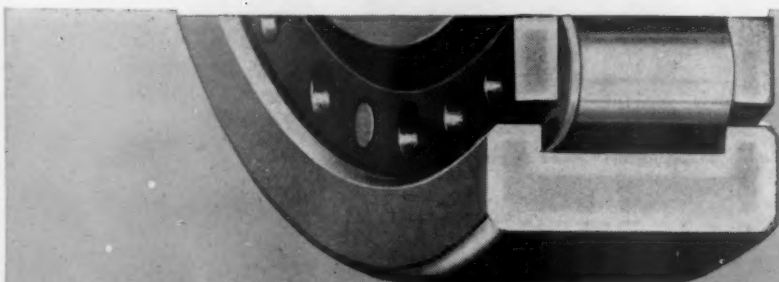
tool. For the aircraft industry, Bower builds straight roller bearings—especially designed for high-speed, high-temperature operation—which are used by virtually every producer of jet engines.

Whatever you manufacture, you'll build a better product with Bower roller bearings. Write to Bower today. A Bower engineer will give you full details of the complete Bower line.

BOWER ROLLER BEARING DIVISION
FEDERAL-MOGUL-BOWER BEARINGS, INC., DETROIT 14, MICH.

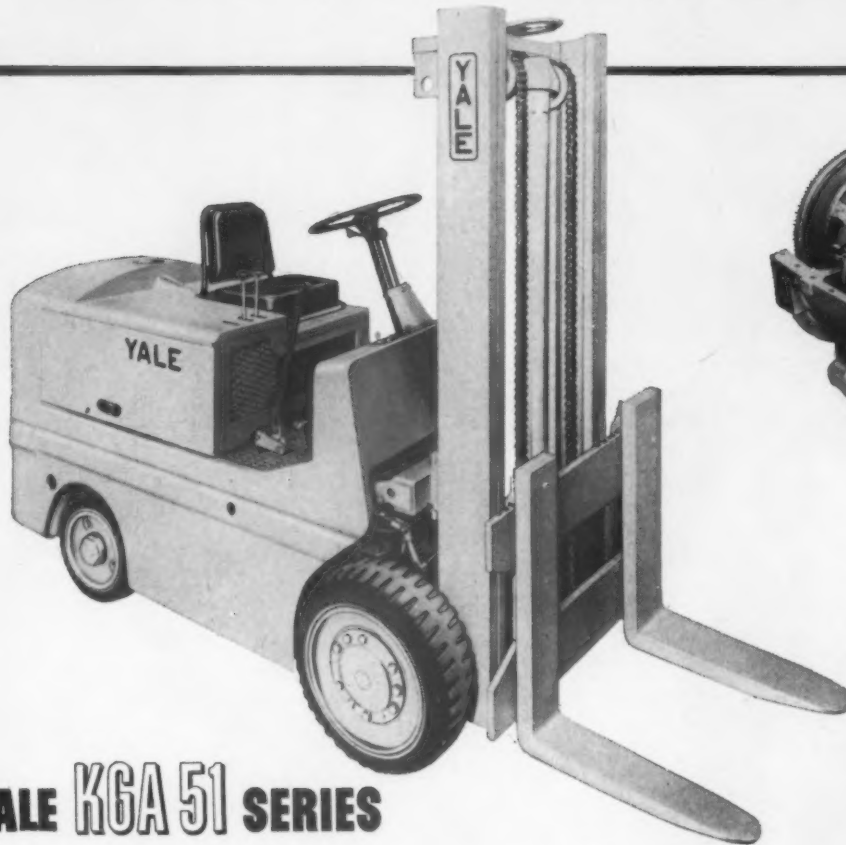
BOWER

ROLLER BEARINGS

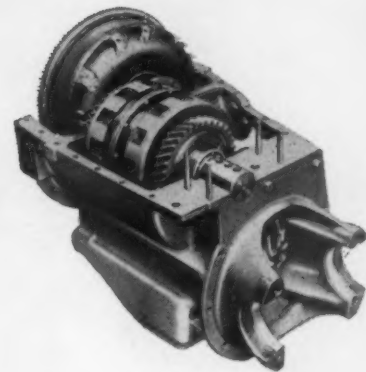


**A COMPLETE LINE
OF TAPERED, STRAIGHT
AND JOURNAL
ROLLER BEARINGS**

The smoothest handling lift truck ever built



YALE KGA 51 SERIES



YALE Torque Transmission
[FULLY AUTOMATIC]

Specifically designed for the KGA51 Series of Yale Industrial Lift Trucks, the Yale Torque Transmission through torque conversion provides the best all-purpose means of attaining "POWER WHEN NEEDED."

Ease and safety of a modern car... automatic response to power demand with **YALE** *Torque Transmission* [FULLY AUTOMATIC]

Automatic Power Control. Engineered exclusively for the KGA51 series, the YALE Torque Transmission matches power to power demand... applies the necessary power at the moment it's needed for starting or climbing grades under all load conditions.

Fully Automatic Transmission. Simplified controls increase operator efficiency, reduce fatigue. No clutch pedal or shifting of gears. Only two drive controls—accelerator and directional control lever.

Inching Control. Smoother and more accurate maneuvering of the truck is permitted at times when

high engine speeds are required to perform faster lifting or for an attachment operation.

Longer Truck Life. "Cushioned Action" of YALE Torque Transmission reduces vibration and shock loading with less wear on moving parts.

Increased Operator Efficiency. Lowered cowl affords maximum visibility with operator protection. Improved safety and comfort offered by lowered seat.

Versatility. Available in capacities from 3000 to 8000 lbs. ... Gas, Diesel, or LP-Gas powered...cushioned or pneumatic tires.

FREE, FACT-FILLED BOOKLET



This informative color booklet includes cut-away of the KGA51 Truck—shows why this is the smoothest handling lift truck ever built. Write: The Yale & Towne Manufacturing

Company, Roosevelt Boulevard, Philadelphia 15, Pa., Dept. 2512.

YALE*
**INDUSTRIAL LIFT
TRUCKS AND HOISTS**

Gas, Electric, Diesel, LP-Gas Industrial Lift Trucks • Worksavers
Warehousemen • Hand Lift Trucks • Hand and Electric Hoists

*REG. U. S. PAT. OFF.

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DRY-TYPE TRANSFORMERS



NEW G-E Sound Lab provides valuable information on dry-type transformers to assure highest quality at lowest possible cost.



NEW TYPE D, three-phase transformer, offers more wiring connection space. Natural draft general-purpose unit has modern appearance, ratings extend through 500 kva.



NEW G-E voltage stabilizing transformers have benefits that include size reduction, longer-life and quieter operation... Direct results of intensive research.



NEW FRAME SIZES of control transformers save time, lower installation costs. Features open wiring or roomy wiring compartment.

Here's how G.E. makes dry-type transformers smaller, lighter at less cost to you

At General Electric's new sound lab in Fort Wayne, G-E engineers are constantly working to find new methods and materials to give you quieter, more efficient dry-type transformers. It is research such as this that results in higher quality in standardized units at less cost to you. G.E.'s new line of control transformers is a perfect example of what our engineering facilities can mean to you.

THROUGH DEVELOPMENT at the factory level, you now get a reduction of up to 40 per cent on weight in the new control line. Class B Alkanex* insulation, a direct result of G-E research, permits higher operating temperatures with less losses and longer life. The new all welded "fourposter" construction means that laminations cannot shift and losses from stray flux are held to a

minimum. These are typical of the benefits you gain from G-E lab research. **LOWER COSTS** result from a lab program that produces a better standard unit to fulfill a wide range of specific applications. These standard units can fill your needs in most cases. In those instances where you need a special unit, G.E. can modify a standard design or build a custom-designed unit to meet your toughest applications.

CALL YOUR NEAREST G-E Distributor or Apparatus Sales Office when you need assistance in voltage transformation or control. Or, if you want prices and specifications on the new standard lines pictured above, write Section 410-9, General Electric Company, Schenectady 5, New York. Your information will be forwarded promptly and free of charge.

* Reg. Trade-mark of General Electric Company.

Progress Is Our Most Important Product

GENERAL  **ELECTRIC**

How to produce a Laboratory Scale to sell for only \$29.50

CASE HISTORIES FROM MT. VERNON FILES

Manufacture a laboratory balance as accurate, as fine-looking as this Ohaus Cent-O-Gram* — capacity 311 grams, sensitivity to .01 gram — to sell for only \$29.50? Realistically, you'd have said it was impossible... but here it is!

To produce such an outstanding value in a precision instrument requires all the top level design and production abilities that can be mustered. The two principal parts of this balance — base and support brackets — were designed to obtain all the advantages of die casting: — thin wall sections of great strength and rigidity, negligible machining, high speed production, low cost.

And low cost means low first cost too; that's why Mt. Vernon has been a constant supplier to Ohaus for many years. From die cost to finished casting, Mt. Vernon has both the complete die casting service and the facilities it takes to produce parts like these at minimum

cost in any quantity. We have 162,000 square feet of the most modern equipment for making dies and for die casting aluminum and zinc. Mt. Vernon service comprises completely coordinated designing, die-making, casting, and machining, all under one roof.

It will pay you to bring your production specifications to us. We may show you, as we did Ohaus, the way to important cost reductions and improved products.



*Manufactured by Ohaus Scale Corporation, Union, N. J.



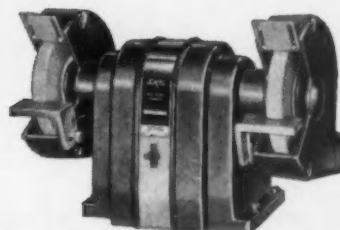
Nothing Like It For "Big Grinder" Features At Low Cost!

SKIL 6" Model 246 Bench Grinder

FOR GRINDING, SHARPENING, BRUSHING OR BUFFING...
IN ALL PRODUCTION AND MAINTENANCE!



Ordinarily you find features like these only on larger, more expensive bench grinders! There's *extra safety* in SKIL's wheel guards with end covers, spark arrestors and exhaust chutes, and sturdy adjustable tool rests. Flat face design permits easier handling of work, lets you reach hard-to-get-at surfaces. For all grinding, sharpening, brushing and buffing jobs in the smaller shop. Also ideal for spotting around larger plants to eliminate bottlenecks, save man-hours. Ask your distributor for free demonstration and free trial!



Model 246, 1/4 h.p.—Only \$58.00

Model 247, 1/3 h.p.—Only \$68.00

Why SKIL
Bench Grinders
Are the Finest
You Can Buy!



More safety features—exclusive with SKIL at these low prices!



Self-lubricating ball bearings for continuous top performance!



Fast-starting, quiet, statically and dynamically balanced motor!



Pedestal base and eye shields...optional at small extra cost.



Solid housing of pressure die cast aluminum. Modern appearance!

SKIL

PORTABLE TOOLS

Made only by SKIL Corporation, formerly SKILSAW, Inc., 5033 Elston Avenue, Chicago 30, Illinois • 3601 Dundas Street West, Toronto 9, Ontario

FREE! Mail coupon for a demonstration and FREE trial. See why SKIL Models 246 and 247 are the finest grinders of their size you can buy anywhere today!

SKIL Corporation, Dept. P-125

5033 Elston Avenue, Chicago 30, Illinois

☐ I would like a demonstration and free trial.

☐ Please send literature on SKIL Models 246 and 247 Bench Grinders.

Name

Company

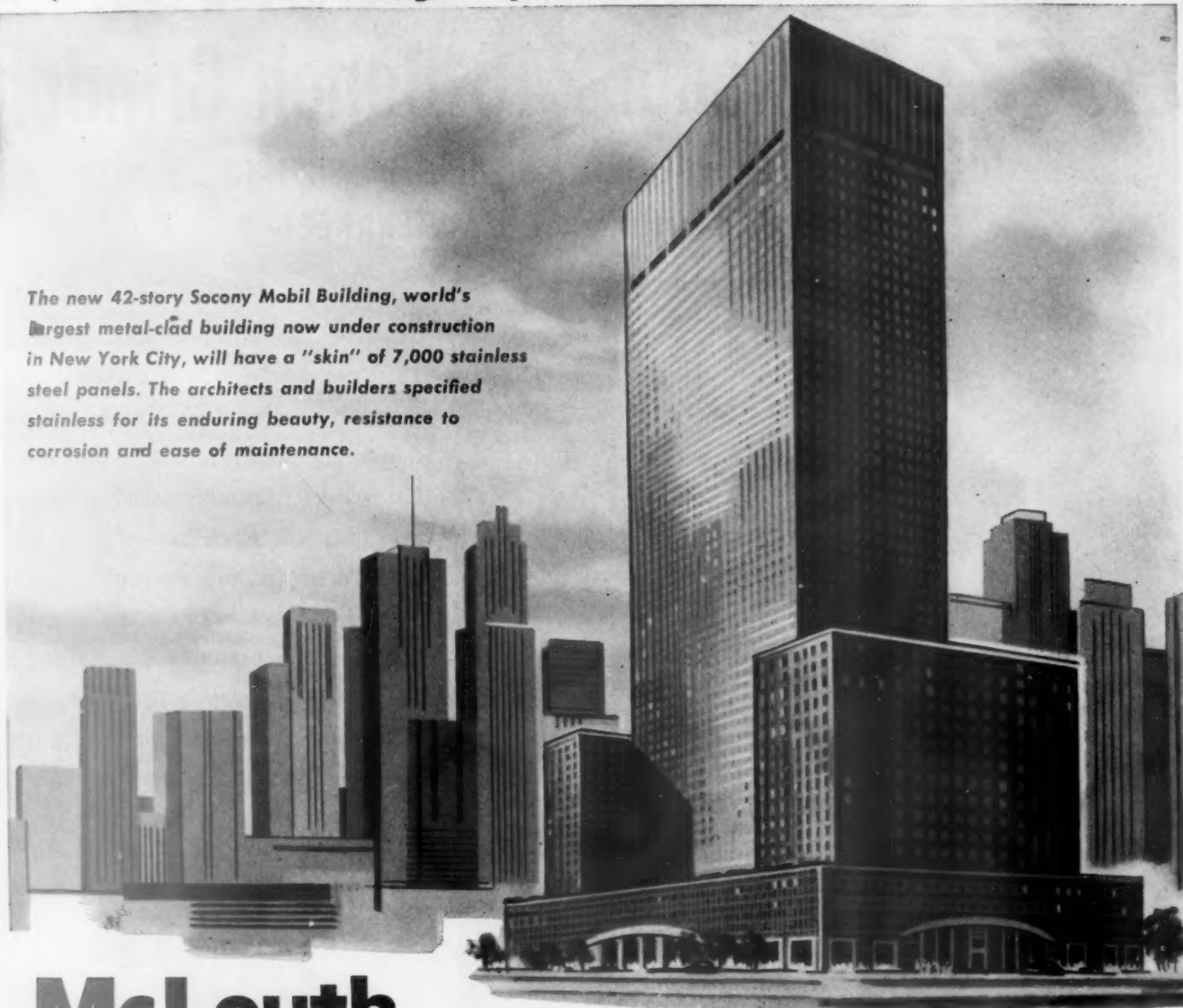
Street

City

Zone State

modern design specifies stainless steel

The new 42-story Socony Mobil Building, world's largest metal-clad building now under construction in New York City, will have a "skin" of 7,000 stainless steel panels. The architects and builders specified stainless for its enduring beauty, resistance to corrosion and ease of maintenance.

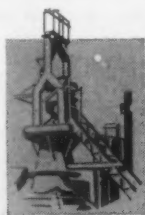
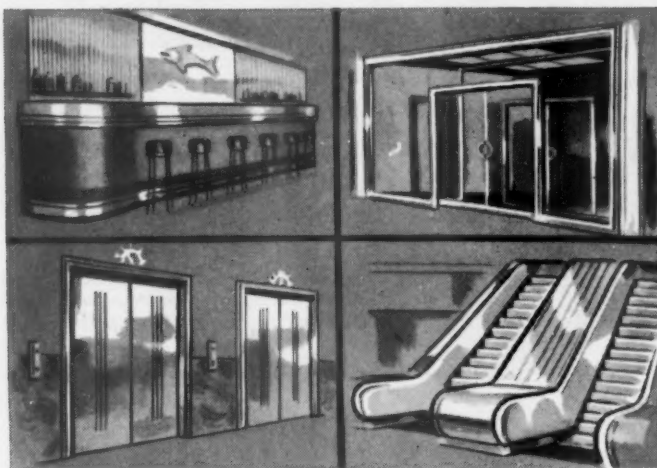


McLouth STAINLESS **Steel**

for buildings

In fixtures, trim, curtain walls and hundreds of other applications you will profit by using McLouth Stainless Steel.

For the product you make today and the product you plan for tomorrow specify McLouth high quality sheet and strip Stainless Steel.



McLOUTH STEEL CORPORATION
Detroit, Michigan

MANUFACTURERS OF STAINLESS AND CARBON STEELS

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42

For More Information Circle No. 187 on Inquiry Card—Page 17→
PURCHASING

Come to **EX-CELL-O**

FOR FAST, ECONOMICAL PRODUCTION OF PARTS

With a staff of process engineers, modern and complete manufacturing facilities, and skilled personnel the Ex-Cell-O organization can produce quality parts to your specifications and in quantities to meet your production schedules. Our complete, modern testing laboratory is well equipped to handle both physical and chemical tests and analyses. Facilities include:

PRODUCTION MACHINES

Vertical Turret Lathes • Automatic Screw Machines • B & S
Automatics • Ex-Cell-O Bor-Drill and Gun Drilling Machines
• Engine Lathes • Centerless O.D. Grinders • Centerless
I.D. Grinders • Form Grinders • Plain I.D. Grinders •
Surface Grinders (plain and rotary) • Milling Machines •
Thread Milling Machines • Thread Rolling Machines • Criden
Threaders • Broaching Machines • Groove Grinding
Machines • Flat and Cylindrical Lapping Machines • Pro-
duction Honing Machines • Special High Production Equip-
ment • Ex-Cell-O Precision Boring Machines and Thread
Grinders equipped for high production.

HEAT TREATMENT

Induction Heat Treating • Sub-Zero Treating Equipment •
Atmosphere Controlled Furnaces • Carburize Furnaces •
Hydrogen Furnaces • Black Oxide Tanks • Nitriding
Furnaces • Cyanide, Lead and Neutral Salt Pot Furnaces •
Sand and Vapor Blast Equipment • Tumbling Equipment.



Let this famous precision manufacturer produce your parts and unit assemblies

Within its own plants, Ex-Cell-O has developed highest efficiency in the economical use of machines and cutting tools. This applies to any job requiring either standard or special production facilities; and it's based on many years of experience as one of the world's largest manufacturers of machine tools and cutting tools.

Over these years, volume production of parts by the most economical modern methods has been an important part of Ex-Cell-O's business. Today, Ex-Cell-O is equipped to serve you as never before... Let's discuss it.

Contact your local Ex-Cell-O representative, or send your part, print, or sketch to Ex-Cell-O in Detroit.

EX-CELL-O CORPORATION

DETROIT 32, MICHIGAN

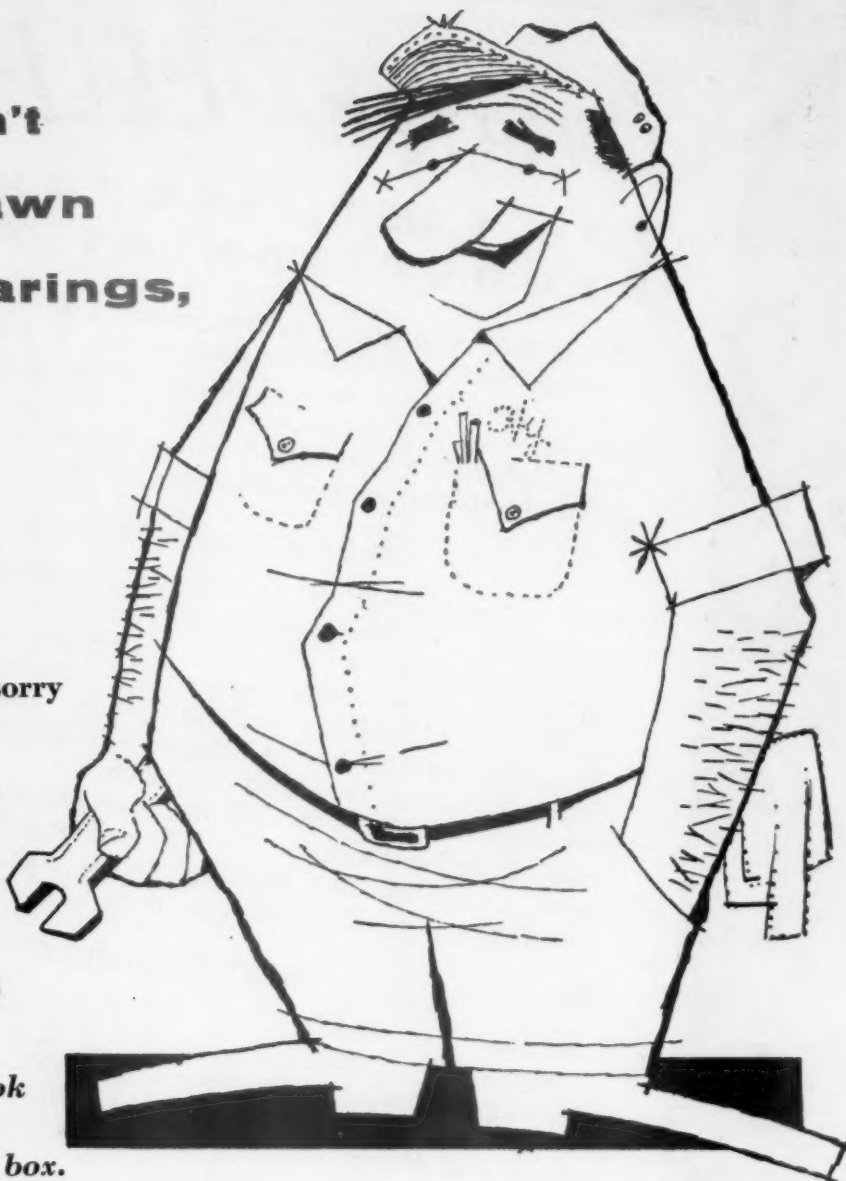
MANUFACTURERS OF PRECISION MACHINE TOOLS • GRINDING SPINDLES • CUTTING TOOLS • RAILROAD PINS
AND BUSHINGS • DRILL JIG BUSHINGS • AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

**you can't
talk brawn
into bearings,
boys!**

HY SAYS: Take it from an old-timer—a bearing's either got it, or it ain't. I fell for one o' those slick sales talks for off-beat bearings once myself—but *just once*. Was I sorry I hadn't used Hyatts!

Hyatts were so good they were original equipment when I broke into this game—and *they're even better today!* If you want to be proud of your work and keep your customers happy, just remember this:

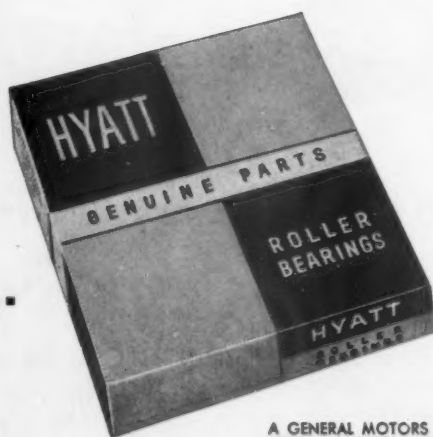
There's other bearings that *look* as good, but you *hold out for Hyatts in the blue and yellow box.* When it comes to *quality,*



**meet HY WHEELER,
the sage of the
socket wrench!**

He may have been tinkering with engines before you were engineering with TinkerToys, and he may be quaint, but he's a good man to know. He'll be here regularly from now on to give you a chuckle and some helpful hints. Watch for him!

**there's no
substitute for...**



**DISTRIBUTED
BY
DEALERS
EVERYWHERE**

A GENERAL MOTORS PRODUCT



A UNITED MOTORS LINE



HYATT

ROLLER BEARINGS

STRAIGHT BARREL TAPER

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

For More Information Circle No. 188 on Inquiry Card—Page 17



ET THE INSIDE STORY . . .



and get the best Floor Treatment and Maintenance Program that's within your budget

—how to bring your floors into peak condition and keep them that way. Finest quality Hillyard Products cut labor time—and assure actual savings of maintenance dollars!

A Hillyard Floor Survey is made up specially for you and your floor problems. It takes into account the type of flooring material, the floor's location, the kind and amount of floor traffic, and your standards for appearance

—sanitation—safety.



Branches in Principal Cities

ST. JOSEPH,
MISSOURI
Passaic, N. J.
San Jose Calif.

Ask for a Survey on your floors, by your nearby Hillyard "Maintaineer".® This service is without charge or obligation—a Nation-wide staff of Hillyard "Maintaineers" (trained floor consultants) "on your staff not your payroll." There's a "Maintaineer" near you to help you plan the most efficient, economical floor treatment and maintenance plan for YOUR floors.



HILLYARD CHEMICAL CO.
St. Joseph, Mo.

Please have a Hillyard Maintaineer call to make a Survey on my floors. (No obligation)

Name
Institution
Address
City State

Truck rolls over...



Crush proof container. Here's the Gair container that brought White Echo depth sounders through truck smash-up without a scratch.

but Gair containers save fragile electronic depth sounders!

These are the facts — straight from Tom Crotty, factory manager, Wilfrid O. White & Sons, Inc., Boston manufacturer of navigational instruments:

"Nineteen White Echo depth sounders, packed individually in Gair-designed containers, were ticketed for anxious customers in New York. The truck was involved in a serious accident. Most of the cargo was a complete loss and we figured our in-

struments were damaged beyond use.

"Upon return of the shipment we found that although some of the containers were crushed, the liners had prevented even the slightest damage to the sounders. Electronic tests showed each instrument in perfect operating condition."

Your product can have the same protection that saved these fragile instruments. Write your nearest Gair Container plant to find out how.

YOU'RE LIVING NEXT DOOR TO THE EXPERT

GAIR CONTAINER PLANTS: Atlanta, Ga. • Cambridge, Mass. • Cleveland, Ohio • Holyoke, Mass. • Jackson, Miss. • Los Angeles, Cal. • Martinsville, Va. • New Orleans, La. • No. Tonawanda, N. Y. • Philadelphia, Pa. • Plymouth, Mich. • Portland, Conn. • Richmond, Va. • Syracuse, N. Y. • Teterboro, N. J.



GAIR

SHIPPING CONTAINERS • FOLDING CARTONS

PAPERBOARD • KRAFT BAGS AND WRAPPINGS

ROBERT GAIR COMPANY, INC. • 155 EAST 44TH STREET • NEW YORK 17, N.Y.

SC.5.10

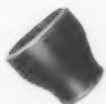
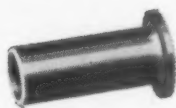
For More Information Circle No. 190 on Inquiry Card—Page 17

When the Specs call for

WELDING FITTINGS



YOUR B&W FITTINGS DISTRIBUTOR CAN SAVE YOU TIME AND MONEY



He carries and maintains a wide variety of sizes and types of B&W Seamless Welding Fittings for every requirement.

It's his business... a dependable source of supply... to serve you.

Contact your nearest B&W Fittings Distributor now.

For the name of your B&W Fittings Distributor, call any of these B&W Tubular Products Div. District Sales Offices:

Beaver Falls, Pa.	Detroit 26, Mich.	Philadelphia 2, Pa.
Boston 16, Mass.	Houston 19, Tex.	St. Louis 8, Mo.
Chicago 3, Ill.	Los Angeles 17, Calif.	San Francisco 3, Calif.
Cincinnati 6, O.	Milwaukee 46, Wis.	Syracuse 2, N. Y.
Cleveland 14, O.	New York 16, N. Y.	Tulsa 3, Okla.

THE
NATURAL
SOURCE FOR
ALLOY
FITTINGS

B&W
TUBULAR PRODUCTS
DIVISION

FA-5918

THE BABCOCK & WILCOX COMPANY Tubular Products Division — Fittings Department • 3839 W. Burnham Street • Milwaukee 46, Wisconsin

For More Information Circle No. 191 on Inquiry Card—Page 17

Texas bank makes sound investment...

a **KOPPERS** **BONDED ROOF**

The new quarters of the Republic National Bank dominate the Dallas skyline. This 36-story skyscraper is the tallest building in the entire Southwest.

Architects wanted only the best in roofing to protect this \$25,000,000 structure. By specifying Koppers Built-Up Roofing, they knew the roof would provide long, trouble-free service under every climatic condition. This proved to be a sound investment for Republic National, for Koppers has guaranteed the performance of these roofing materials for 20 years.

Actually, this is a conservative guarantee on Koppers part. Many Koppers Pitch and Felt Roofs have been giving owners good service for more than 30 years. Much of the credit for this long service life goes to coal-tar pitch—the basic ingredient in Koppers Roofs. This product is famous for its waterproofing and self-healing qualities.

Get the superior protection of Koppers Roofing for your next commercial, industrial or residential building. Full information available on request.

Architects: HARRISON & ABRAMOVITZ, NEW YORK, NEW YORK
GILL & HARRELL, DALLAS, TEXAS

General Contractor: J. W. BATESON CO., INC., DALLAS, TEXAS

Roofer: DOUGHERTY ROOFING CO., DALLAS, TEXAS



KOPPERS COMPANY, INC., Pittsburgh 19, Pennsylvania

DISTRICT OFFICES: BOSTON, CHICAGO, LOS ANGELES, NEW YORK, PITTSBURGH, AND WOODWARD, ALA.

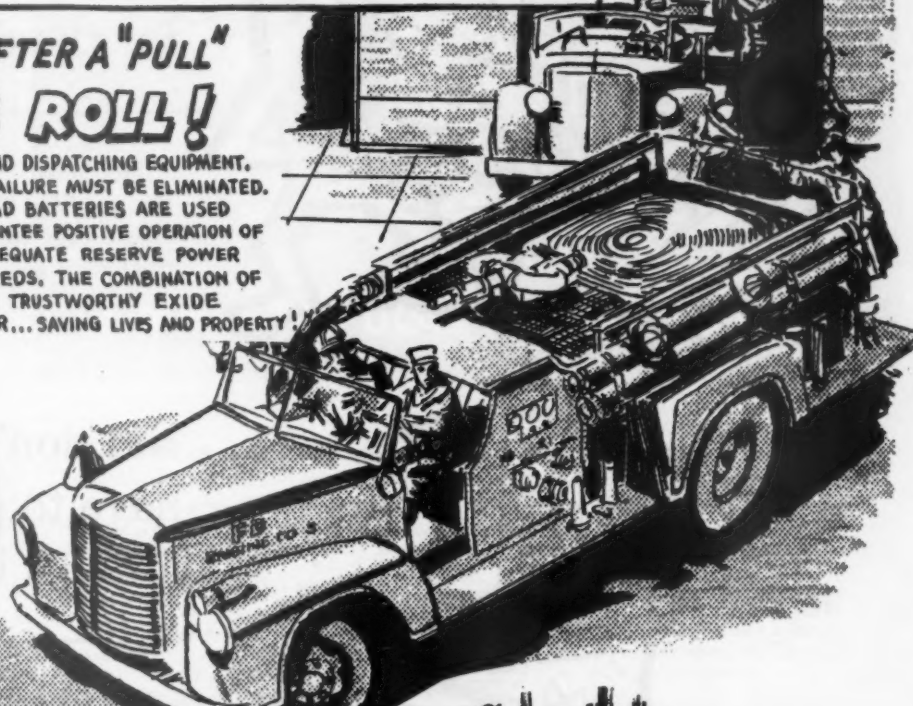
• SPECIFY KOPPERS FOR LONG-LIFE ROOFING •

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FACTS ABOUT **Exide**[®] INDUSTRIAL BATTERIES

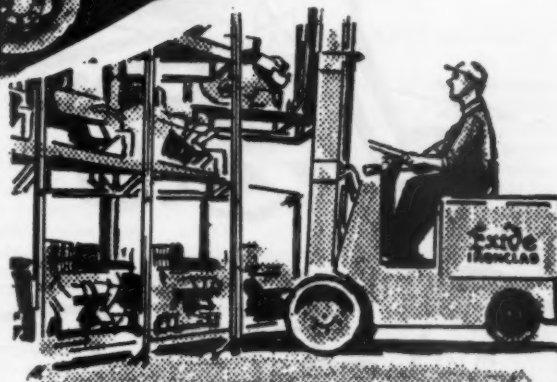
30 SECONDS AFTER A "PULL" ENGINES ROLL!

SECONDS COUNT IN RECORDING FIRES AND DISPATCHING EQUIPMENT. THAT'S WHY THE POSSIBILITY OF POWER FAILURE MUST BE ELIMINATED. THAT'S WHY DEPENDABLE EXIDE-IRONCLAD BATTERIES ARE USED BY THE NATION'S FIREFIGHTERS TO GUARANTEE POSITIVE OPERATION OF FIRE AND POLICE TELEGRAPHS. HAVE ADEQUATE RESERVE POWER FOR EMERGENCIES BEYOND NORMAL NEEDS. THE COMBINATION OF AN INDEPENDENT ALARM SYSTEM WITH TRUSTWORTHY EXIDE BATTERIES MEANS GETTING THERE FASTER... SAVING LIVES AND PROPERTY!



EXIDES HELP ON BOARD THE SUNBEAM, "GOD'S TUGBOAT"

MANY ARE THE PROBLEMS OF A MINISTER WITH A 2500-ISLAND PARISH—AND THE NEED FOR A STURDY, DEPENDABLE VESSEL IS OBVIOUS. OPERATED BY THE MAINE SEA COAST MISSION, THE 72-FOOT DIESEL TUG SUNBEAM III IS CALLED "GOD'S TUGBOAT" BY THE FISHING FAMILIES IT SERVES WITH YEAR ROUND RELIGIOUS AID. IT IS A SEAGOING CLINIC, AMBULANCE, LIBRARY, CARRIER OF FREIGHT, PASSENGERS AND MAIL. IN WINTER IT FREQUENTLY ACTS AS AN ICEBREAKER.



END WORK-SCHEDULING WORRIES... **IRONCLADS** STAY **STRONG** TO SHIFT'S END!

POWERFUL IRONCLADS HELP YOU KEEP PRODUCTION MOVING WITH UNIFORM RATE OF MATERIALS HANDLING! THEY KEEP TRUCKS WORKING FULL-SHIFT, WITH NO LAST-HOUR LET-DOWN IN TRUCK POWER OR PERFORMANCE... YOU MAKE FULL USE OF EVERY MAN AND MACHINE, GET MORE WORK DONE!

EXIDE INDUSTRIAL BATTERIES ARE BUILT FOR LONGER LIFE AND GREATER POWER. LET AN EXIDE SALES ENGINEER SHOW YOU HOW EXIDES CAN IMPROVE YOUR OPERATIONS, CUT COSTS, PROTECT YOUR BUSINESS.

Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa.



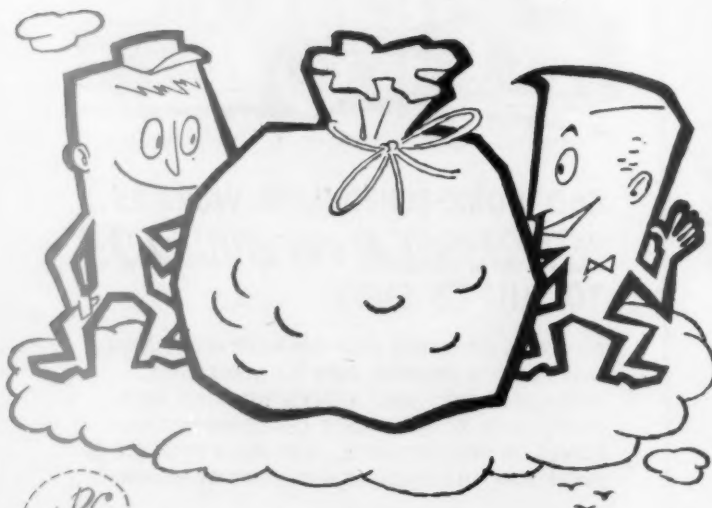
Are those all
the ashes
for the day?

That's all! We're using a low-ash coal now. The analysis shows only one-half as much ash as the coal we had been using, and there is a great deal less unconsumed coke on the refuse.



But don't we
have to pay more
for this kind of coal?

Yes, we may pay more at the mine, but it costs us less delivered. Remember we used to pay freight on all those ashes and then pay to haul them away. And because there is so much more usable coal in each ton, we use fewer tons.



Who showed us how
to make this saving?

A C&O fuel service engineer gave us the facts and figures to show that this higher quality coal would really cost us less in the long run, and our experience has proved he was right. I am convinced now that you can't buy coal on price alone. It pays to get the advice of a competent combustion engineer and to pick the coal that will do the best job under your own set of conditions.



There's a lot more to buying coal than the cost per ton. Why not contact coal producers on the C&O to solve your particular fuel requirements, or write to: R. C. Riedinger, General Coal Traffic Manager, Chesapeake and Ohio Railway Company, Terminal Tower, Cleveland 1, Ohio.

Chesapeake and Ohio Railway

WORLD'S LARGEST CARRIER



OF BITUMINOUS COAL

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PURCHASING



A-B explosion-proof solenoid starter on liquid petroleum gas compressor.



A-B Bulletin 609 manual starter on Barnes-drill magnetic and fabric filter.



A-B solenoid starters and 3-button station on Economy shaving machine.



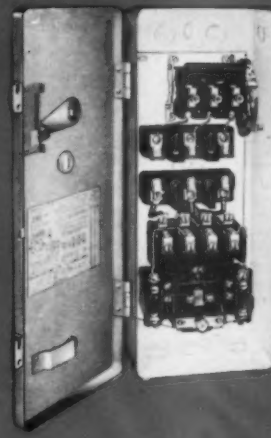
A-B Bulletin 709 solenoid starter on Oliver 36 inch, 5 hp band saw.



Bulletin 609 manual starter showing overload breakers



Bulletin 709 automatic solenoid starter



Bulletin 712 combination starter with fuses and disconnect

3 MOST POPULAR MOTOR STARTERS

These three across-the-line starters are so popular because each is a **QUALITY** product in design and construction, which provides continuously accurate and reliable thermal overload protection. Costly motor burn-outs are prevented and machine shutdowns are avoided.

Bulletin 609 Manual Starters

Because these starters are push-button operated, they can be mounted in close groups if necessary. Switching mechanism is both "quick make" and "quick break." Sustained overload trips the starter and stops the motor. The overload breakers are reset by pushing the STOP-RESET button. Available up to 5 hp, 220 v; 7 1/2 hp, 440-550 v.

Bulletin 709 Solenoid Starters

The simple design—only one moving part—of these remote control automatic starters assures long life and trouble free operation. Provide reliable motor overload protection. They also give no-voltage release protection that prevents the acci-



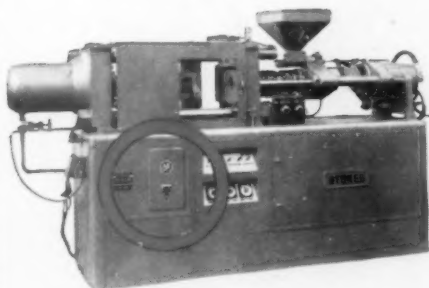
dental restarting of stalled motors. The operator must press the **START** button to restart the motor. Available in ratings up to 300 hp, 220 v; 600 hp, 440-550 v.

Bulletin 712-713 Combination Starters

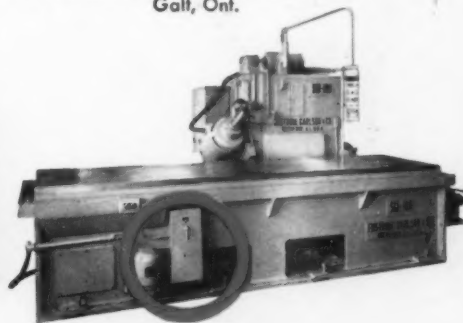
These compact starters save space and installation cost by combining magnetic starter and manual visible blade disconnect or circuit breaker in a single cabinet. This assures a neat, safe installation, because starter cabinet cannot be opened unless disconnect lever is in the "OFF" position. Available with manual disconnect up to 100 hp, 220 v; 200 hp, 440-550 v. With circuit breaker up to 200 hp, 220 v; 400 hp, 440-550 v.

Allen-Bradley Co.
1316 S. Second St., Milwaukee 4, Wis.

In Canada—Allen-Bradley Canada Ltd.
Galt, Ont.



A-B flush-type Bulletin 709 starter on Stokes injection molder.



A-B Bulletin 712 combination starter on Ekstrom-Carlson scarf mill.

10-55-MR

ALLEN-BRADLEY
MOTOR CONTROL
QUALITY



Allen-Bradley oil-tight push buttons

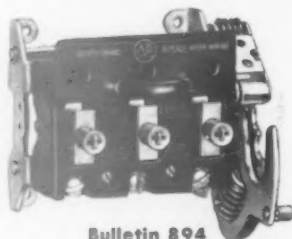
Allen-Bradley oil-tight pilot lights

Automatic control panel built into machine frame

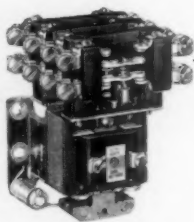
Modern Burr Master Gear Burring & Chamfering Machine built by Modern Industrial Engineering Co., Detroit, Michigan

How to Build Trouble Free Automatic Control Panels

ALLEN-BRADLEY PANEL COMPONENTS



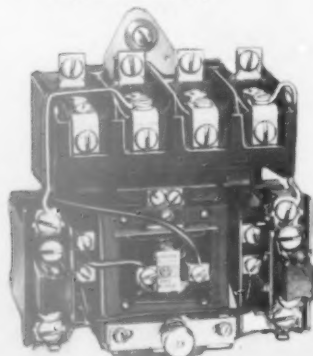
Bulletin 894
Manual Visible Blade Disconnect



Bulletin 700 Uni-
versal Relays up to
8 poles a-c or d-c



Bulletin 891
Adjustable Fuse Clips



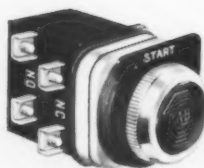
Bulletin 709
Solenoid Starter



Bulletin 800T Oil-
tight Pilot Light with
glass lens



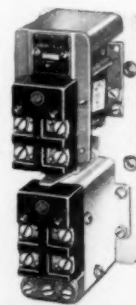
Bulletin 350
Drum Switch



Bulletin 800T Oil-
tight Push Button



Bulletin 800T Oil-
tight Push Buttons



Bulletin 849
Pneumatic Timer

Special control panels—to be reliable and trouble-free—must be built of reliable starters, relays, timers, indicating pilot lights, etc.

When you standardize on the Allen-Bradley line of control components, you get the benefits of years of practical experience with all types of control problems. But, best of all, let Allen-Bradley design and build your trouble free panels for you. Call your nearest Allen-Bradley office for friendly counsel.

Allen-Bradley Co.
1316 S. Second St., Milwaukee 4, Wis.
In Canada—Allen-Bradley Canada Ltd.
Galt, Ont.


ALLEN-BRADLEY
QUALITY
MOTOR CONTROL



Seeking, and finding, ways to
improve your products
 by improving ours

It all starts with you . . . you and other users of metal who want new or better products.

A hot-dip coater, for example, wants a faster melting, tighter bonding alloy. An assembler of small parts asks for a quicker acting cored solder. A die caster needs higher strength or better finishing surfaces. And so it goes.

The men who want to cut cost, improve quality, reduce rejects, increase profits, put it up to National Lead field men . . . and National Lead Research goes after the answers.

Finds them, too . . . in case after case, industry after industry. Leading companies in many fields turn naturally to National Lead for help whenever their

problem involves lead, tin, zinc, and their alloys; solders, fluxes, babbitts; grid or type metals; lead, tin or zinc coating or casting alloys.

We would welcome an opportunity to do a job for you. If you feel that in your operations there is room for improvement of product, reduction of costs, speedup of production, let a National Lead man look in on you. This procedure has been the beginning of many a long — and mutually profitable — relationship.

National Lead Company

New York 6; Atlanta; Baltimore 3; Depew (N.Y.); Chicago 80; Cincinnati 3; Cleveland 13; Dallas 2; Philadelphia 25; Pittsburgh 12; St. Louis 1; Boston 6 (National Lead Co. of Mass.); Los Angeles 23 (Morris P. Kirk & Son, Inc.); Toronto, Canada (Canada Metal Company, Ltd.).



...your smartest
move...



REPUBLIC STEEL CORPORATION
3126 East 45th Street
Cleveland 27, Ohio



Please send me more information on:

- | | |
|---|--|
| <input type="checkbox"/> Bolts and Nuts | <input type="checkbox"/> Chateaugay Pig Iron |
| <input type="checkbox"/> Materials Handling Equipment | <input type="checkbox"/> Alloy Steels |

Name _____ Title _____

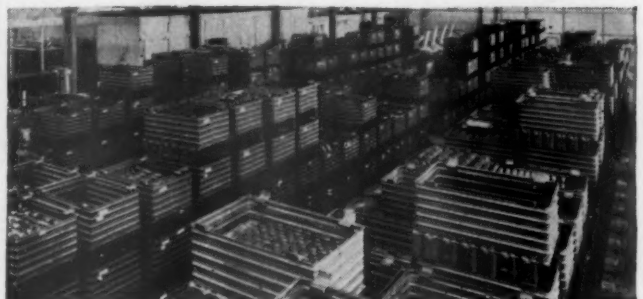
Company _____

Address _____

City _____ Zone _____ State _____

K-5960

MORE SMART



SIMPLIFY STORAGE AND HANDLING PROBLEMS. No matter what system you now use or would like to have, your Republic Materials Handling Dealer has the equipment to meet your needs. He offers a complete line from basic Skids and Pallets to Dump Type Box and Skid Units designed to help you conserve floor space, reduce handling costs and improve inventory control.

REPUBLIC

Whatever your need for fasteners, your smartest move is to contact Republic. You'll get the jump on time and check excessive procurement costs because you eliminate blind alleys in locating the particular fasteners your job requires.

Republic's Bolt and Nut Division manufactures and stocks over 20,000 standard types and sizes of fasteners. In addition, over 8,000 "specials" are available such as battery bolts, bent bolts, and "Nylok" nuts. And, if you need something *still* different, Republic can draw on over 100 years of experience to handle big-volume contract manu-

facturing of any type of headed or threaded product, designed especially for you.

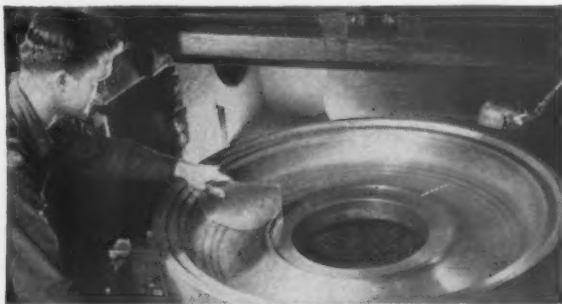
When you choose Republic, you gain another broad benefit . . . quality. Uniformity and long life are assured in each fastener through Republic's intensive quality-control program . . . extending from raw ore to finished product. No matter whether you specify carbon, alloy or stainless steel—or titanium—nothing is left to chance.

On your next order for fasteners, check with your industrial distributor or your Republic representative. You'll agree it's the best move you can make. Meantime, mail the coupon for full information.

REPUBLIC STEEL

World's Widest Range of Standard Steels and Steel Products

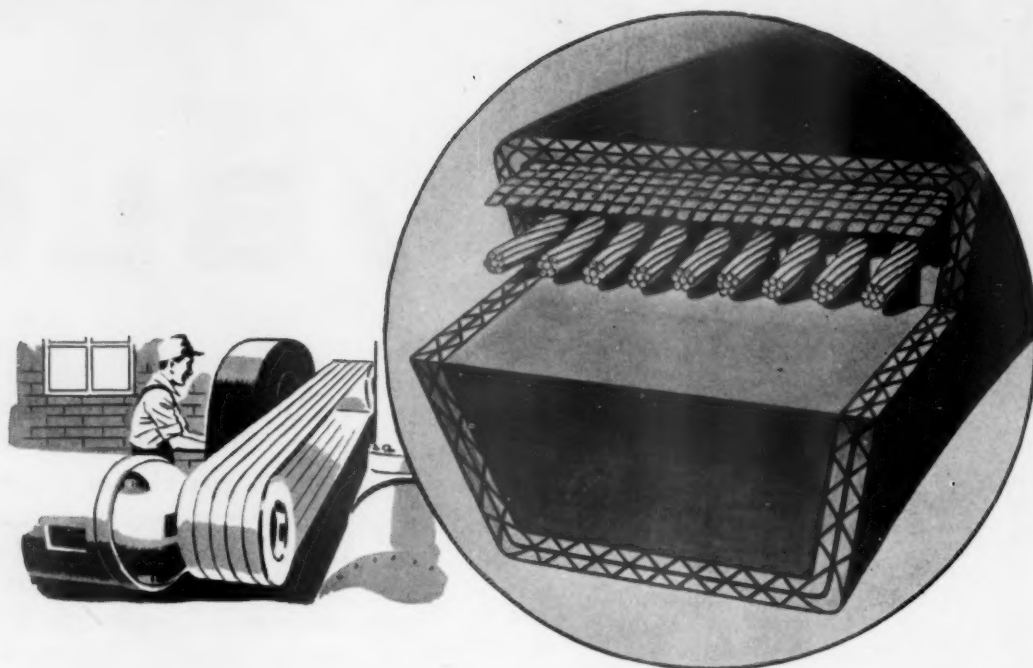
MOVES TO BEAT HIGH COSTS:



IMPROVE QUALITY OF PRECISION CASTINGS. Through the use of Chateaugay, Republic's exclusive premium pig iron, you can produce superior castings every time. You'll get a fine surface finish, uniform grain structure and excellent machinability which add up to real economy. Any necessary hand finishing is minimized, too. Get full information on Chateaugay Pig Iron, today. Just mail the coupon.

REDUCE WEIGHT AND IMPROVE DESIGN. "Beefing-up" to provide a safety factor won't work with moving parts. More weight means more wear . . . more torque to start . . . more energy to stop. The answers Call Republic, world's largest producer of alloy steels. Republic can supply the right alloy to meet your required margins of strength and long life *without* excess weight.





Why Thermoid Company uses Celanese* FORTISAN*36 rayon in V-belts

Thermoid Company of Trenton, New Jersey, now uses FORTISAN-36, the new Celanese high tenacity, heavy duty rayon made from saponified acetate as the reinforcing cord in V-belts where severe stress is anticipated.

FORTISAN-36 has been found superior in both "performance" and "elongation" to competitive fibers.

Thermoid officials say "its 'performance' is considerably better than that of conventional fibers. Change of cord length throughout the belt life is practically infinitesimal, and is not affected by 'work' or atmospheric conditions."

FORTISAN-36 is presently being used for V-belts subjected to severe drives in automatic washing machines, power lawn mowers, pas-

senger cars, trucks, and farm tractors.

If you have a stake in any of these areas—or are concerned with any industrial problem where high strength yarns are important—we'd like to work with you on the application of FORTISAN-36 to your products.

Our technical men have a wealth of data which may indicate some new approaches to you.

For further information, write for Booklet T. D. 20 to Celanese Corporation of America, Industrial Sales Department, Textile Division, Charlotte, North Carolina. Branch offices: 180 Madison Avenue, N. Y. 16, N. Y.; Pilgrim Square Building, 9 Overwood Road at West Market Street, Akron 13, Ohio, Telephone TE 6-2392.

*Reg. U. S. Pat. Off.

Celanese* Fibers for Industry

FORTISAN* RAYON • FORTISAN*-36 • ARNEL* TRIACETATE • ACETATE • VISCOSE-RAYON

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PURCHASING

What's special about this STOP NUT?

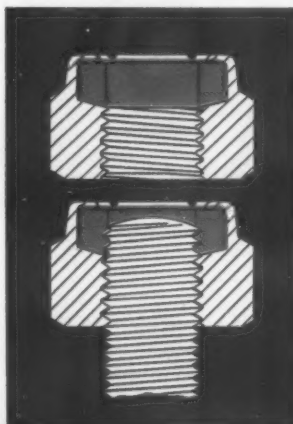
Several things make this nut unusual. For instance, you can "stop" it at any position on the threaded length of the bolt . . . or wrench it tight against the work where it protects bolt threads against corrosion and prevents liquid leakage. No matter where you leave it on the bolt, it will remain tight in that exact position, even though you subject it to heavy vibration and shock loads. But use a wrench on it and it comes off as easily as it went on. The red locking collar is nondestructive—does not gall bolt threads or remove plating. You can remove it and re-use it again and again.



What gives it its grip?

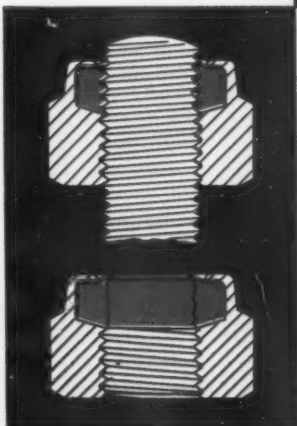
1 The locking collar is unthreaded and elastic. It has an inside diameter smaller than the major diameter of standard bolts.

2 The bolt impresses a mating thread into the collar and the resulting compressive forces exert a constant friction grip on the bolt. . . .



3 and exert a downward thrust bringing the lower flanks of the bolt thread into firm metal to metal contact with the matching nut threads, eliminating normal axial play.

4 Nut is removable and reusable . . . the Red Elastic Collar retains its grip after repeated usage.



Will it hold under ALL conditions?

The locking principle of the Elastic Stop® nut has been tested and proved by over 25 years of actual field service. Elastic Stop nuts are used on locomotives . . . and pile drivers. They fasten hedge shears and harvesters, drilling rigs and washing machines, trucks and roller skates. And no Elastic Stop nut customer has ever stopped using them because of unsatisfactory performance.

What about sizes and materials?

Elastic Stop nuts are available from a watchmaker's 0-80 all the way to 4"—in materials that include stainless steel, brass, aluminum and other alloys. Protect your product with "fastener insurance." Try Elastic Stop nuts on trouble spots, whether to protect expensive heavy equipment from costly downtime or to guarantee the accuracy of delicate electrical equipment by maintaining precision adjustments. We'll supply free test samples.



ELASTIC STOP NUT CORPORATION OF AMERICA

Dept. N82-1215, 2330 Vauxhall Road, Union, N. J.

Please send the following free fastening information:

☐ ELASTIC STOP nut bulletin

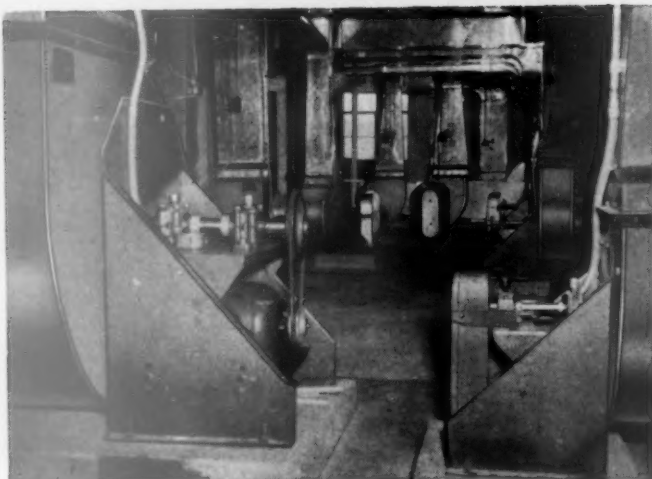
☐ Here is a drawing of our product. What self-locking fastener would you suggest?

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Firm _____

Street _____

City _____ Zone _____ State _____



INDOORS — VENTILATION OF ZONES OR WHOLE BUILDINGS

Compact "Buffalo" Belted Vent Sets are easily installed singly or in groups (as above) for varying volume requirements, or for different zones—and new fans can be easily added as ventilation requirements increase.



OUTDOORS — VENTILATION THAT DOESN'T USE FLOOR SPACE

Furnished with all-weather drive, husky Belted Vent Sets are ideal for roof or other outdoor installations. Range of capacities is 500 cfm to 20,000 cfm in this line of extremely quiet, efficient ventilating fans.

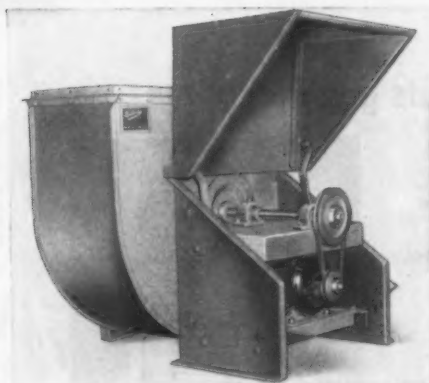
FAN FLEXIBILITY..

TO SIMPLIFY YOUR JOB PLANNING

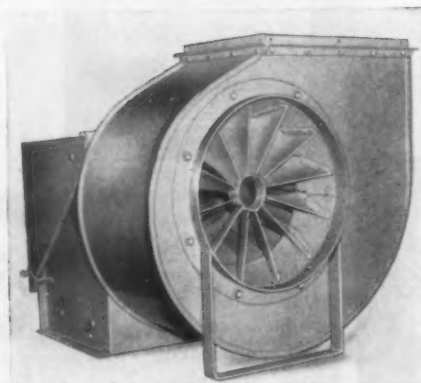
"Buffalo"

BELTED VENT SETS

Whether you're planning a large or small air moving job, these fans will fit right into your plans. Installation can be indoors or outdoors, and their light weight and compact size simplifies the job. You can get large capacity at small-fan cost with multiple-fan installations — for complete flexibility of operation. And when you put "Buffalo" Belted Vent Sets into the plan, you give your customers "Q" Factor performance — built-in Quality that means long life and satisfaction. Write for new Bulletin 3720A and data on new model Belted Vent Sets now being used for small induced draft applications.



**ADJUSTABLE
MOTOR MOUNT**
permits easy
change of pulleys
and belts for
capacity changes
after installation.



**HIGH
PERFORMANCE**
is built into
"Buffalo" Belted
Vent Sets. Note
inlet guide vanes
which reduce noise
and stabilize
performance.



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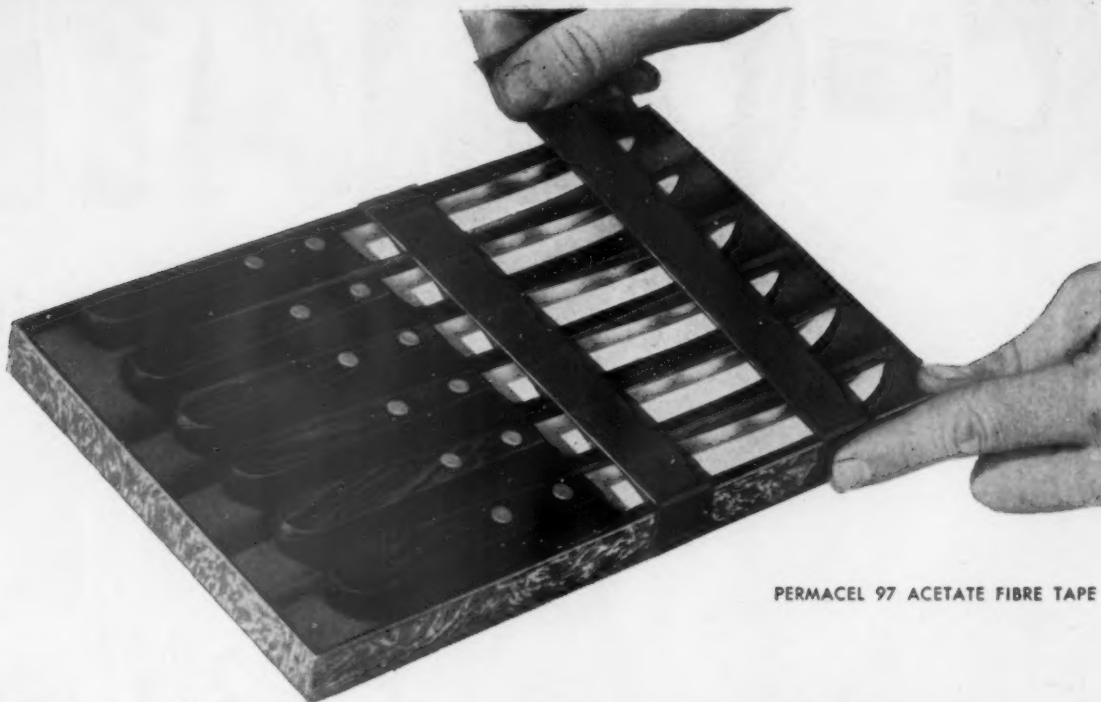
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For More Information Circle No. 200 on Inquiry Card—Page 17

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PERMACEL 64 CLOTH TAPE

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PERMACEL[®] TAPES

In our complete line, there's a self-sticking tape for every job . . . write Permacel Tape Corporation, New Brunswick, N. J.

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NOW! Weld even mild and



announced by A. O. Smith

medium carbon steels automatically ...
new gas-shielded metal arc process
uses Carbon Dioxide to shield the arc

ON GAS ALONE in one year's time (3 shifts per day, 260 days), a single C-OMATIC unit saves you \$14,902.00 over Argon, \$15,367.00 over Helium.

● **NEW ECONOMY** thanks to use of less-costly Carbon Dioxide . . . thanks to low maintenance requirements of functional design.

● **X-RAY QUALITY WELDS** — Strength and ductility — yours with C-OMATIC.

● **VISIBLE ARC** means faster, easier welding . . . quick, convenient spotting of nozzle. (When required, C-OMATIC is easily convertible to submerged arc, too.)

● **DEEP PENETRATION** further assures high quality welds. No slag to remove . . . no flux to clean up.

● **ACCURATE CONTROL SYSTEM** of constant current design maintains preset arc voltage without fluctuation. No complex electronic circuits! Auxiliary controls available.

● **POWER SOURCE** — The service-proved A. O. Smith d-c rectifier.

Chart illustrates astonishing savings

	HELIUM	C-OMATIC	YOUR SAVINGS		ARGON	C-OMATIC	YOUR SAVINGS
Gas consumption per hour	70 cu. ft.	30 cu. ft.	40 cu. ft.	Gas consumption per hour	60 cu. ft.	30 cu. ft.	30 cu. ft.
Cost of gas per cu. ft.	\$0.067	\$0.01	\$0.057	Cost of gas per cu. ft.	\$0.09	\$0.01	\$0.08
Cost of gas per hour	\$4.69	\$0.30	\$4.39	Cost of gas per hour	\$5.40	\$0.30	\$5.10
Cost per hour 60% of duty cycle	\$2.81	\$0.18	\$2.63	Cost per hour 50% of duty cycle	\$2.70	\$0.15	\$2.55
Cost per day (3 shifts, 22.5 hours)	\$63.20	\$4.05	\$59.15	Cost per day (3 shifts, 22.5 hours)	\$60.80	\$3.38	\$57.42
Cost per year (260 days)	\$16,420	\$1,053	\$15,367	Cost per year (260 days)	\$15,780	\$878	\$14,902

GET ALL THE FACTS NOW! Write for free booklet describing C-OMATIC in detail. Welding Products Division, A. O. Smith Corporation, Milwaukee 1, Wisconsin.

See C-OMATIC in action at the AWS show in Kansas City, Mo. . . June 8 to 10 . . . Booth 256.

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CORPORATION

WELDING PRODUCTS DIVISION
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The Man who didn't until he finished that job for you...



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We are proud of our many years of close association with our distributors. No one values a customer more than we. And our distributors are the same stripe . . . educated to service and dedicated to the simple idea of *staying with the customer* in time of trouble until the job is licked and the last Simonds red-trade-marked tool is cutting the way the factory made it to cut.

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t come to dinner...



to serve you better

Starrett® Announces THREE NEW HACKSAW BLADES

Precision made by the "World's Greatest Toolmakers," production proved in the Starrett Testing Laboratory, these new hacksaw blades will give you quicker, cleaner, faster cutting at lower cost.

Distinctively color-identified, with easy-to-remember trade names, these new Starrett Hacksaw Blades are packaged in heavy duty protective boxes featuring a striking new red and yellow design. Ask for them by name . . . Starrett REDSTRIPE, BLUESTRIPE or GREENSTRIPE. Choose them by color when you want the one best hacksaw blade for any cutting assignment. For prompt, dependable service, buy through your Industrial Supply Distributor.

Starrett® REDSTRIPE® S-M HIGH SPEED HACKSAWS
RE-ORDER RS 1804-7

Starrett® GREENSTRIPE® SAFE-FLEX HIGH SPEED HACKSAWS
RE-ORDER SF 1804-7

Starrett® BLUESTRIPE® HIGH SPEED HACKSAWS
RE-ORDER BS 1804-7

STARRETT REDSTRIPE® SM Special Alloy High Speed Steel Power and Hand Blades. Combining the newest developments in heat treating with the hard, long-wearing qualities of special high speed steel. Specially tempered for extra toughness and high speed cutting of hard materials with heavier speeds and feeds.

STARRETT GREENSTRIPE® SAFEFLEX® Welded Edge Power Blades and Hard Edge — Flexible Back Hand Blades. Power blades are shatterproof . . . double-welded to give you the safest, straightest cutting, longest-lasting power blades ever made. Hand blades combine a hard cutting edge and tough, flexible back to make them virtually unbreakable.

STARRETT BLUESTRIPE® Selected High Speed Steel Power and Hand Blades. Specially heat treated for high speed production sawing of hard-to-cut metals like high alloy steel, stainless steel, phosphor bronze, tool steel, rails, Allegheny Metal, chrome steel, Monel Metal, etc. Also the blade to use on run-of-shop jobs because one pitch of teeth will cut a wider range of metals.

STARRETT STANDARD Hand Hacksaw Blades. Three types to fit all standard hand hacksaw frames . . . ALL-HARD for bench sawing, HARD EDGE-FLEXIBLE BACK for general purpose sawing and SEMI-FLEX for tough, blade-killing jobs.

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without a wrinkle!"*



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this H&D wardrobe box—travel cross
country without dust or wrinkles.
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Automation Comes to Purchasing

SOME FEW YEARS AGO, when the "electronic brain" machines were first unveiled to an astounded world, one of the prize winning papers in a contest sponsored by the National Association of Purchasing Agents raised the question: Will purchasing agents be replaced by machines? The author's answer was an emphatic "No", based on the elements of judgment and decision and personal negotiation that are inherent in the purchasing process.

But thoughtful purchasing men know that this process also involves many elements of routine, and that even many of the decisions can be more soundly and more rapidly arrived at by mathematical means than by personal estimate and calculation. They have seen the newly developed automatic calculating and tabulating devices as new tools for purchasing—not to replace the purchasing agent with a machine, but to improve office practice, reduce operating costs, and release the buyer from the routine chores of his job for the more constructive activities in which his judgment and negotiating skill can be applied to better effect.

Two articles in this issue report on such applications of automation to purchasing procedures. They represent independent, original thinking in two important areas of purchasing. Both of them happen to be based on the punched card method of data finding and processing. One of them applies this method to production materials in mass production industry; the other to maintenance inventories in a railway operation. Both of them find certain limitations, as well as substantial advantages. The fact that they have found successful answers to the problems of two such diverse purchasing programs suggests that the limitations will be overcome as new methods of application are studied and tried.

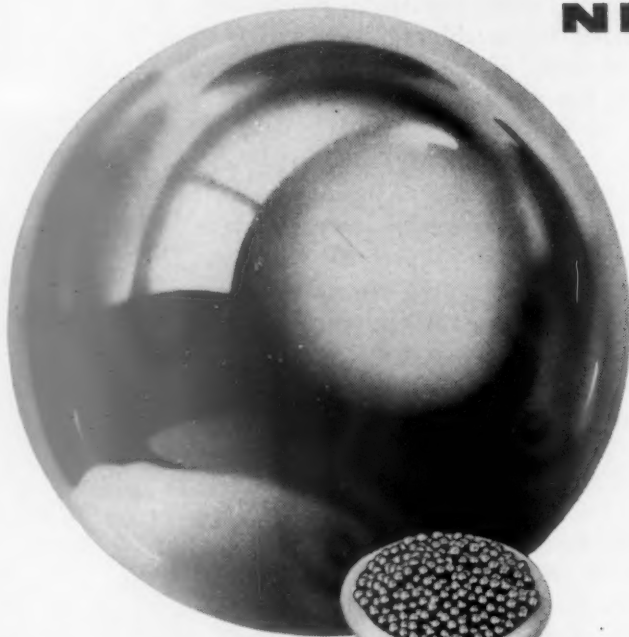
This is pioneering work. It is only a start. We may well be at the threshold of a new era in purchasing procedures, as revolutionary and as far reaching as automation in the factory. Meanwhile, the pioneering work is going on in dozens of other purchasing offices, and remarkable new devices are being developed for automatic and integrated data processing that may be put to work in purchasing routines. PURCHASING will continue to report on these new tools and systems.

Stuart F. Henrity

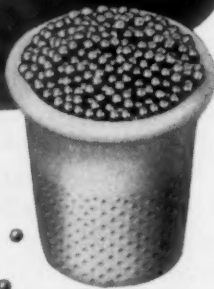
FACTS

about

NEW DEPARTURE STEEL BALLS



New Departure steel balls are produced in a wide range of sizes. The thimble contains about 3,000 balls one millimeter in diameter. There is enough steel in the large ball to make 156,660 of the tiny balls.



**Available in any quantity
to fit your specifications
for grade, size and accuracy!**

When industry wants steel balls of proven accuracy and dependability, it is only natural that they turn to New Departure, leading producer of ball bearings and therefore thoroughly experienced in the manufacture of precision balls. Today, New Departure provides industry with high-carbon chrome and stainless steel balls in a wide range of sizes and specifications.

New Departure balls are produced from the finest high-carbon chrome steel. AISI Type E51100 steel, specially made for New Departure, is heat-treated to achieve the proper hardness and toughness for maximum strength and life in the finished product. Stainless steel, AISI Type 440C, used by New Departure results in balls of much improved hardness and load-carrying ability.

In addition to producing the finest steel balls available, New Departure will fill volume orders for balls of special materials such as high-nickel or cobalt-base alloys, tool steel and others.

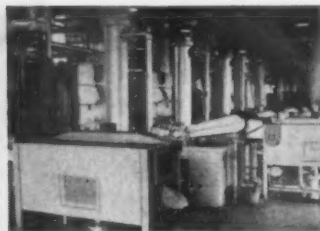
NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONN.



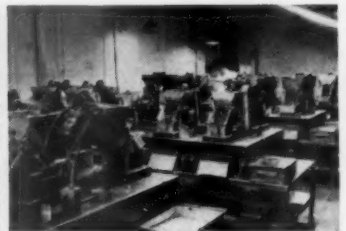
Steel ball wire is drawn through dies to assure uniform diameter and roundness.



Precise control of grain flow is obtained with these Ball Heading Machines.

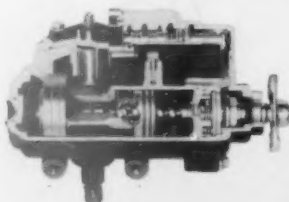


Balls are heat-treated, quenched in oil or water, then tempered in electric furnaces.

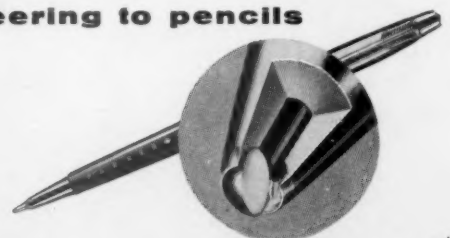


These gauges sort balls into lots according to required diameter limits.

Applications range from power steering to pencils



The unique advantages of New Departure steel balls are utilized in many applications ranging from heavy-duty bearings to the new liquid lead pencil. To accommodate these applications, New Departure steel balls are offered in sizes ranging from .025 inch to 1 7/8 inches in diameter.





Automation has become more than a word in purchasing. It is an accepted fact. That doesn't mean that the purchasing agent is in danger of being replaced by a machine, where requisitions and bills of material will be put into a hopper and come out as neat procurement programs untouched by the human hand and without benefit of purchasing judgment and negotiation. Rather, it means that the purchasing agent will have quicker and more accurate means of arriving at right decisions, and that he will be relieved of many tedious processing chores so that judgment and negotiation will have more productive, profitable scope. You'll be hearing a lot more about automation as a purchasing tool. Meanwhile, the articles on page 82 and page 85 will give you a good start in getting acquainted with the new methods.

You have probably done some fruitful work in the area of **Cost Saving** through purchasing. But have you examined all the possibilities? There are many related factors that don't show up in the invoice price, but are nevertheless reflected in over-all materials costs and in company profits. Turn to page 74 for a comprehensive savings survey that will help you in doing a complete job.

"**Buy or Lease?**" is becoming just as important a question in the equipment field as "Make or Buy?" in the manufacturing operations of a company. One type of equipment to which this applies is the automotive fleet. It is a far-reaching question, involving decisions on contract hauling as well as company-operated vehicles. For a thoughtful review of this entire problem, the costs and factors to be considered, turn to page 118.



Fuel Oil is commonly bought by grade designation, but

the grade numbers do not begin to tell the whole story of quality and suitability for a specific application. The article on page 111 explains what the grade means, how far it can be used as a guide, and discusses the other qualities on which a purchasing agent should be informed to insure satisfaction in his purchase.

Lumber buying, for product or shipping purposes, has changed notably in recent years. A survey of representative lumber buyers reveals these trends as to selection of species and sources, the timing of purchases, and the growing role of truck transportation in bringing lumber from the mill to the market. You can profit from the experience of these buyers, as reported on page 93.

The migration of business to the suburbs has raised a new problem for many purchasing departments — **In-Plant Feeding**. Even with a company subsidy to carry a part of the cost, a well planned and expertly conducted purchasing operation is essential to success. This assumes even greater importance when the cafeteria is viewed in the light of its effect as a morale builder, beyond the actual feeding function. One company that has been very successful in attaining this dual objective, within the budget allowance, tells how it was done. Turn to the article on page 79.



Policies, too often simply taken for granted, are the essential foundation for successful purchasing. Two articles in this issue give practical guidance on this phase of buying. See pages 71 and 116.

Don't overlook these regular monthly departments, compiled for your information: the Washington Report (page 13); New Catalogs (page 17); New Equipment and Products (page 142); News of Your Suppliers (page 22), of Association Activities (page 198), and of Men in Purchasing (page 258); Keeping up to date on such developments makes for better buying.

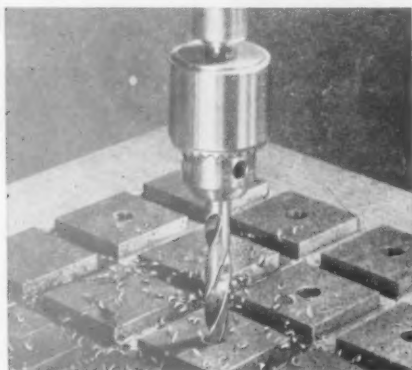
next
month:

THE SCIENCE OF PURCHASING—A detailed, authoritative review of today's methods and techniques for better industrial purchasing

WHAT'S NEW IN STEEL FROM STOCK

Now—Leaded Plates

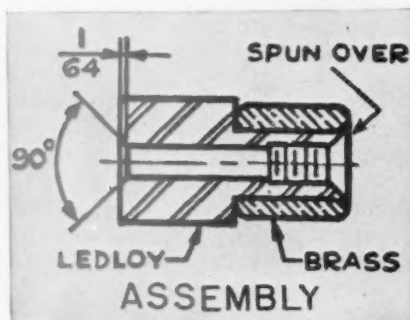
First stocks of leaded steel plates available anywhere are now on hand at Ryerson—and users are reporting results as remarkable as those achieved by thousands of companies with leaded steel bars. Tests show that New E-Z-Cut leaded plates cut faster, take a sounder weld, and polish to a high finish more readily than non-leaded



E-Z-Cut plates. And because sulphur content is much lower New E-Z-Cut is a much cleaner steel, free from troublesome sulphide stringers. First stocks include thicknesses up through 3".

Leaded Bars Make News

Ledloy from Ryerson attracted a good deal of attention at the Chicago Machine Tool Show this fall when three leading machine tool manufacturers chose this amazingly fast-cutting leaded bar steel to demonstrate the efficiency of their latest equipment. For example, the part shown here was machined from Ledloy and assembled with its brass ferrule at a rate of 200 per hour by one tool builder. And at the A.S.M. Show in Philadelphia machining demonstrations showed that the new Ryerson leaded alloy steel Rycut 40 in-



creases tool life up to 300% over non-leaded alloys in the same carbon range. For more details about these demonstrations, and for many other case studies, call Ryerson—where the nation's largest stocks of leaded carbon and alloy steels are available for immediate shipment.

New Fluid Power Tubing

Another development highlighted at the Machine Tool Show is the tremendous increase in hydraulic power applications. And because of this increase, the new Ryerson stocks of light-wall, pump-cylinder finish cold-drawn WELDED tubing should be of interest to a widening group. The special smooth I.D. of this welded tubing often makes it suitable for use "as-is" in place of more expensive types of tubing which still require extra finishing operations. Also in Ryerson stocks for hydraulic applications: Rockrite cylinder finish tubing and hydraulic fluid line tubing.

New Look for Steel Walls

Give steel-walled buildings new beauty with stainless steel siding in mansard pattern, now available for quick shipment from Ryerson. (Galvanized and carbon steel sheets are also available in mansard pattern.) Unusually attractive, economical in total area lost from pattern formation, maintenance-free stainless in mansard pattern also has many industrial and miscellaneous architectural ornamental applications. For new bulletin 70-5, write Ryerson, Box 8000-A, Chicago 80.

Aircraft Steels Specs

Just off the press, a new booklet entitled "Aircraft Steels" contains latest information, in condensed form, on Aeronautical Specifications—Military (MIL), Air Force-Navy (AN), Federal (QQ-S) and AMS aircraft quality steels. Also included is a complete listing of aircraft quality alloy and stainless steels available for quick shipment from Ryerson. To get your copy write Ryerson, Box 8000-A, Chicago 80, for booklet 93.



Biggest Stainless Plates

Now available from Ryerson stocks: 96" wide plates in thicknesses up through 1", and heavier plates in 80" widths. Types on hand: 304, 304L, 316, 316L. Save welding on next big job with these larger plates.

Carbon Bars, Plates, Shapes

Heavy demand is keeping supply out of balance from a size standpoint. However, we have thousands of tons of steel on hand and new tonnage being received daily. Ryerson stocks remain the world's largest and most diversified.

Joseph T. Ryerson & Son, Inc.

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STEEL

every kind

in stock

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CARBON, ALLOY AND STAINLESS STEELS
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Director of Purchases N. L. Symons is a member of the nine-man Operating Committee that makes the policies in Argus' youthful, progressive organization.

Purchasing Helps Make Company Policy

How purchasing earns its place at the management table through constructive contribution to company profits and a progressive approach to its problems

By Dean S. Ammer

HOW MUCH can purchasing contribute to a company's success? It most certainly is making a valuable contribution even if it restricts its activities to just doing a first-class buying job. But, as every PA knows, it can accomplish far more than this. General Electric has developed "Tests for Value" as a check to determine whether or not a part contributes usefulness in proportion to its costs. What are the "Tests for Value" that will measure the effectiveness of purchasing in realizing its maximum potential?

Here are three of them:

1. Is the purchasing agent part of the top-management policy-making group?

2. Does purchasing take the initiative on changes in design or manufacturing techniques that will boost quality or cut costs?

3. Does purchasing make such effective use of its own resources that it can successfully develop programs like inventory control and value analysis? Does it occasionally even go so far as to suggest that the company market or manufacture brand new products?

A Good Example

One company that would get a high score on such "Tests for Value" is Argus Cameras, Inc., of Ann Arbor, Michigan. Director of Purchases N. L. Symons is a member

of the nine-man operating committee that runs this 1100-employee organization. The company he helps manage has been notably successful in competing for the consumer dollar with large European camera manufacturers who enjoy the benefit of substantially lower labor costs. And it makes a healthy profit doing it.

One of the unusual things about Argus is the relative youthfulness of its management. Only two members of the operating committee are over 40 years old. Director of Purchase Symons is 32. This is probably one of the major reasons why the organization has so much flexibility and drive and so little resistance to innovation. Certainly there can be

PURCHASING

argus cameras, inc.

INTER-OFFICE CORRESPONDENCE

TO N. L. Symons FROM R. B. Foster
DATE May 25, 1955

SUBJECT Progress Report
1. (a) Price Increases - None
(b) Price Decreases -

Part No.	Present Price	Revised Price
L-5707	.080	.063
L-6703	.14	.125
L-0721	.215	.185
L-0722	.145	.135
L-0723	.17	.14
L-4701	.08	.065
L-4702	.0725	.055
L-4703	.08	.063
L-3731	.13	.10
L-3732	.075	.06
L-3733	.125	.09
L-7761	.11	.08
	.08	.07
	.085	.065

Commodity Notes:

2. Glass - Prices steady
increase due to

Copper - Steady at

Aluminum - Market

Zinc - Market

3. Specific Problems

Quality problems

4. Special Problems

Purchase

5. Future Plans

(a) Com

(b) Rev

(c) Ver

COST REDUCTION

PART NO. 540358

USED ON MODEL

PRESENT VENDOR DuPont Corporation

METHOD OF MANUFACTURE Purchase

MATERIAL Tri-chloroethylene

COST PER PIECE 11.25/cwt. FOR WYANDOTTE or 11.49/cwt. delivery

ANNUAL USAGE 35 drums/mo.; 420 drums/yr.; 275,000 lbs./yr.

DESCRIPTION OF PROPOSED CHANGE Bulk handling by tank truck

10.75/cwt. delivered Basis 35 drums/mo.

420 drums/yr.

275,000 lbs./yr.

PRESENT COST X ANNUAL USAGE = \$31,607.50

PROPOSED COST X ANNUAL USAGE = 22,562.50

GROSS SAVING 2,045.00

Savings in drum handling cost (min. \$2.00/drum) 840.00

Less credit of .50/drum if salvaged 210.00

NET SAVING \$2,675.00

Effective date of change

Suggested by Margaret Hardy

Submitted by

Date November 3, 1955

This form is used in the purchasing department for cost reduction proposals that involve changes in design, specification, or purchasing methods. Suggestions are backed by thorough dollars and cents analysis in terms of Argus requirements and usage.

DECEMBER, 1955



By Brenton Riha

Purchasing Agent
Igoe Brothers, Inc.
Newark, N. J.

Brenton Riha majored in Business Administration at New York University, with extensive supplementary work in Chemistry, Physics, and Mathematics. He was invited to join the University's teaching staff upon graduation, but decided to apply his training in a business career. His initial experience was with a wholesale distributor of industrial products and an electrical firm. Since 1950 he has been Purchasing Agent and Assistant to the Manager of Igoe Brothers, Inc., manufacturers of steel wire and wire products. He is a charter member of the Purchasing Agents Association of North Jersey.

A Comprehensive SAVINGS SURVEY for the Purchasing Department

IN THE SEARCH for a strong competitive position, progressive manufacturers are increasingly critical of every phase of their enterprises, examining in greater depth all functions under their control. This broader perspective recognizes that all things influencing net profit create responsibilities and obligations, calling for inquiry, knowledge, and competent measures.

Purchasing—responsible for the commitment and expenditure of approximately 50% of the sales dollar—is no exception to this scrutiny for maximum efficiency. Cost reduction, in all phases of purchasing, is a dominant obligation.

To meet this obligation, the following outline proposes a comprehensive money-saving study of purchasing conditions, methods, and values.

1. Organization Costs

Is the Purchasing Department organized for savings? This ques-

tion can be examined by a careful review of *authority and responsibility* factors related to *functions*. To do this, set up a Work Responsibility Chart—an analytical device with the advantages of brevity and graphic presentation for a comprehensive study.

The chart is prepared on a single large sheet of graph paper. At the left side of the paper, arrange a vertical column listing the major functions of the department. Along the upper edge, arrange a horizontal row of titles including all of the department's supervisory and staff personnel. Insert symbols at the intersection of function and title spaces, showing the direct relationship between the selected operation and the employee involved. The kind and degree of relationship can be indicated by the use of various symbols, or different colored check marks, each briefly identified.

Depending upon the type and size of the department to which the

chart is applied, inspection could disclose, for example:

- a. Restriction of overall departmental authority, limiting unified, money-saving operations.
- b. Divided authority, with its resultant expense.
- c. Omission of cost-saving supervision.
- d. Costly duplication of work.
- e. Over-burdened staff, with costly low efficiency.
- f. Over-staffed divisions, with excessive payroll.
- g. Omission of a permanent, continuing cost analysis function.

Because of the complexity in measurement, some cost reduction opportunities in this category of organization can escape detection. However, thorough investigation may frequently reveal significant potential savings.

2. Clerical Costs

The area involving the Purchasing Department's clerical costs can

**Examine ALL areas of purchasing for
POTENTIAL COST SAVINGS**

Efficient Operation	Buying Value	Related Costs
Organization Procedures Clerical Costs Personnel Work Loads Working Conditions	Right Quantity Specification Standardization Suppliers' Costs Pricing Policies Tax Factors	Inventory Costs Transportation Shipping Methods Conservation Scrap Disposal Salvage

be analyzed for savings by considering the elements of *time and accuracy* in the study of (a) Procedures, (b) Layout, and (C) Employees and Conditions.

Procedures should be examined periodically to see if changes can be made to incorporate improved methods. Avoid complacency with respect to methods in operation that are running smoothly. That is not the only criterion. Such procedures may nevertheless be out of date and relatively costly. Study the adoption of new systems created by purchasing personnel, independent management engineers, and manufacturers of business equipment and supplies. Learn how other companies handle comparable operations, and consider whether they can be adapted to your situation. Look for novel features, promoting efficiency, for greater economy.

Concurrently with procedure improvement, analyze paper forms carefully to see if the variety can be reduced and the remainder redesigned with greater cost-saving features. Consider multiple-use and versatile-use patterns that can be applied to conventional department forms to make them cost-reducers.

Review manuals and standard instructions to see if they can be rewritten with greater clarity and brevity to define current operations. Such revised instructions, supplemented with a brief employee training program, can:

- a. Eliminate wasteful time spent by employees doing things the wrong way.
- b. Eliminate costly conditions resulting from employees doing things inaccurately.
- c. Eliminate out of date and use-less operations.
- d. Reduce cost of supervision.

Office Layouts should be surveyed, with the aid of a floor plan and test layouts on paper, to plan the processing of a maximum of accurate departmental work in

minimum time and with minimum motion.

Mark the proper placement of desks, files, office machines and equipment, and chart the smooth flow of routine paperwork, consultations and interviews, noting the points of origin, intermediate stations, and terminals for each operation. Remember that unorganized motion wastes time and bottlenecks reduce output.

New machines, extra machines, preventive maintenance on existing machines, all can reduce idle time. Modern lighting, soundproofing, and air conditioning can contribute to employee well-being and increased work efficiency.

Study Employee Aptitudes, to reduce costs. A reassignment of responsibilities, in accordance with individual aptitudes, can be the means of raising the overall level of work output. An absenteeism condition leading to overtime costs can be offset by the development of work-versatility among the staff. Standby office plans to be used during overload periods can lessen backlogs and overtime costs.

3. Quantity Costs

The investment in purchased production materials and operating supplies can be scrutinized for savings by analyzing procurement quantities and inventory volume.

Examine the methods applied to determine purchase quantities to see that uncertain forms of estimate are displaced in favor of tested mathematical means. Use an "Economic Ordering Quantity" equation to minimize inventory carrying charges and purchase order costs. Apply a "Quantity Discount" formula to calculate the profitable quantities to purchase from the series of lot-sizes and lot-prices offered by suppliers. Several published tables, graphs, and mechanical calculators are available to make these determinations.

Study average stock volumes to see if quantities are adequate to meet production requirements and emergencies, yet calculated to reflect the lowest possible carrying costs. Analyze the elements restricting or expanding reserves, as you make these quantitative determinations, reducing speculation to a minimum.

Where possible, take advantage of alternate or additional procurement techniques offering greater inventory savings. For example, to reduce carrying costs, consider:

- a. Purchase from local distributors' stocks.
- b. Ordering material delivered on a consignment basis.
- c. Negotiated agreements providing for return of unused material.
- d. Storage of purchased stock on supplier's premises, subject to the buyer's periodic requisition.

Apply these money-saving methods, but also take into account deterioration of material in storage, and obsolescence due to changes in buyer's capital equipment, plant processes, product composition or design. Also, consider available storage space and facilities, and economical freight loads.

4. Specification Costs

To develop savings, examine the specifications on which production, maintenance and operating materials are bought. Study material quality to see if a change can reduce cost.

Change does not necessarily mean quality improvement. Superior properties in a material may be needless and expensive. Recognize that savings can be realized from the use of low grade—even second-hand—materials, as well as from high grade, expensive items giving superior performance or longer service. The cost should be kept proportionate to usefulness.

Determine the origin of speci-

cations presently used. Investigation may disclose the source as unqualified, or the stated need as now outdated. A new design or change in specifications should be approved by tests, trade specialists, technical literature, or profitable use in other plants.

To decide a change in material specifications, seek the answers to a list of questions such as:

1. Who can suggest practical changes?
2. How is the material made or assembled?
3. Can the item be simplified? Can certain parts or features be omitted, or redesigned to lower cost? Can less expensive parts, of the same design, be used?
4. Can the item be made in the buyer's plant at lower cost?
5. Can incoming and outgoing packaging be changed to reduce cost?
6. What is the record of past maintenance?
7. Are sources of supply adequate to support present and future requirements?
8. What are the warranty provisions?
9. Are "idea" sources being fully utilized?
10. Is the analytical effort relative to the item value?

5. Standardization Costs

To increase savings, reduce the number of *special* items among the types, grades, and sizes of all production materials and operating supplies carried in stock. Accomplish this with a dual-purpose program which will (a) use items made to manufacturer's standard specifications, and (b) reduce the variety of total items in inventory.

Standardization offers the following advantages:

1. More sources of supply.
2. Lower frequency of negotiation with suppliers.
3. Prompt delivery, and less expediting cost.
4. Fewer intraplant "specification meetings".
5. Lower purchase price.
6. Less tied-up capital.
7. Smaller inventory needed.
8. Less storage space.
9. More quantity discounts.
10. Lower inward freight costs.

6. Suppliers' Costs

To the extent possible, analyze the supplier's or subcontractor's price basis for additional savings.

Success in this endeavor will depend upon (1) the supplier's willingness to have his price basis sub-

jected to the cost scrutiny of his customer; (2) the buyer's knowledge of the seller's manufacturing facilities, methods, and potentialities; and (3) the seller's and buyer's recognition that appraisals can be *mutually* beneficial.

In this investigation, consider:

a. *Materials*. Scan the supplier's physical inventory. New, lower cost materials, including packaging, placed in production could lower the cost of the finished product to the buyer.

b. *Production Equipment*. Inspect the supplier's production machinery. Installation of modern equipment with greater production rate, less man-hour cost, and less scrap, could lower the cost of the finished product to the buyer.

c. *Cost Allocation*. Review the supplier's prorated costs to exclude misapportionment of charges to the buyer's item.

d. *Prices*. Look for inconsistencies in the supplier's pricing. Check how his products are priced with respect to each other, as well as with general market prices.

e. *Profits*. Compare the supplier's previous and present annual earnings. Increased earnings weaken a demand for rise in prices.

f. *Labor*. Check the labor rates applied to the purchased product, to exclude premium wages reflecting second shifts and overtime.

7. Prices and Costs

Supplement comparisons of suppliers' material prices, cash and trade discounts, with a study of special pricing techniques. Apply these protective purchasing devices to guard against costs due to market variations. For example:

a. In a price-declining market, purchase at a price that will be the average between the date of the purchase contract and that date of material shipment.

b. In a price-rising market, where offerings in contracts are conditional, with escalator clauses and escape provisions, procure bulk quantities (e.g., annual) at lower fixed prices, with periodic deliveries as ordered.

The prerequisite to successful practice of these methods is, of course, a careful study of market conditions relative to the materials considered.

8. Taxes

For additional savings, review the taxes applied to purchased materials and supplies, to take advantage of the exemptions allowed under the statutes.

a. Scan the list of tax-refundable

uses of products, to make sure that claims for refund are filed on tax-exempt quantities consumed.

b. File tax-exempt certificates with suppliers covering products, otherwise taxable, used for non-taxable purposes.

c. Request suppliers to separate non-taxable labor charges from taxable material charges on invoices, to exclude taxation applied to the full amount of bills rendered.

d. Review for exemption all materials used for processing articles into tangible personalty for resale, where such materials become a component part of the finished product.

9. Transportation Costs

Review transportation costs for possible savings.

a. Calculate the reduction in transportation expense possible in a buyer's material pick-up method.

b. Estimate savings available by application of private tariffs to incoming carrier deliveries.

c. Take advantage of commerce conditions which permit incoming freight charges to be equalized with lower competitive shipping rates.

d. Request suppliers to ship material freight prepaid, to eliminate the extra cost of processing transportation invoices.

10. Surplus and Scrap Costs

To increase savings, study the annual accumulation of surplus, waste, and scrap from productive and non-productive manufacturing processes to improve the program covering the reduction and disposition of these materials.

The common causes of surplus, waste, and scrap are (a) deterioration and obsolescence of machinery and materials; (b) improper application of manufacturing methods; and (c) standard operation of equipment. To minimize unavoidable scrap, and to correct conditions resulting in excessive waste, promote conservation remedies. These include employee training, quality control, adoption of modern processing techniques, and improved inventory control.

Profitably dispose of residual materials through:

a. *Sales*, after the surplus, waste, and scrap have been properly separated, bundled or packaged to obtain the highest prices; or

b. *Salvage*, where these materials are reconditioned, reclaimed, or just saved, for interplant or intraplant purchasing, receiving, production, maintenance, repair, operating, or shipping purposes.

PURCHASING reports on

Do Buyers Have Scope to Do A COMPLETE PURCHASING JOB?

Generally, purchasing has been given responsibility and authority to do a sound, profitable buying job. It has been given a chance—in terms of status, manpower, and spelled-out policies—to prove its worth. Yet some companies are missing out on the full benefits of good purchasing because buyers have not been given scope to do a complete job. This survey covers some of the major corporate obstacles to better buying, and how they are being met.

The title of the chief purchasing officer of the companies surveyed is:

Purchasing agent.....	71%
Director of purchases.....	11%
Vice president—purchasing.....	7%
Manager of purchases.....	6%

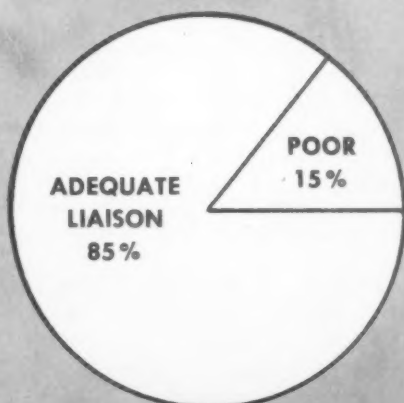
(Also mentioned were general purchasing agent, buyer, director of material, and supervisor of purchasing.)

The purchasing men report to:

President.....	31%
Vice presidents.....	29%
General manager.....	12%
Treasurer.....	8%
Plant manager.....	6%

(Also mentioned were chairman of the board, secretary-treasurer, production manager, division president, and director of finance.)

As to adequate liaison with other departments, the respondents feel:



To carry on an adequate program of purchasing, including research, negotiation, follow-up, and delegation of routine details, the purchasing departments are:



22% say their staffs are too small to follow an adequate research program.

The status of the purchasing function relative to other major departments (e.g. engineering, manufacturing, etc.) is:

Independent and equal 68 %
 Independent, on service basis 26 %
 Included with other departments . . . 5 %
 Subordinate to other departments . . . 1 %

74% think that their departments are organized and administered so as to enable a coordinated over-all policy and program. 26% feel they are not in a position to carry out such a program.

44% of the respondents do not make regular reports on purchasing activities to management. Among the remaining 56%, the frequency of reports runs:

Purchasing's representation and voice in groups making decisions on specifications, selection of substitute materials and processes, standards, capital equipment purchases, and make-or-buy proposals is:

	Yes	Some-times	No
Specifications	75 %	4 %	21 %
Substitutions	82 %	3 %	15 %
Standards	70 %	4 %	26 %
Capital purchases	63 %	3 %	34 %
Make-or-buy	71 %	3 %	26 %

22% of the firms surveyed have an official written statement of purchasing policy. 76% do not.

Annually 11 %
 Quarterly 10 %
 Monthly 49 %
 Weekly 15 %

(Also mentioned were daily reports, semi-annual, semi-monthly, twice-a-week, etc.)

WHAT THEY SAY

"Management supplies the authority but not the personnel."

"As in most cases, we have a constant job keeping various people out of purchasing functions."

"A persistent though illogical belief on the part of owners and top management is that purchasing is a passive, 'house keeping' job, a necessary but routine affair. These are the real obstacles to better purchasing. I have repeatedly effected substantial dollar savings on purchases which would have gone unnoticed unless I 'tooted my own horn'. If the machine or forge shop cuts 2 hours off a job, all top people know of it. Let sales book a large order and the president, etc., glorifies them, even though we took the order at a price which everybody knows will make a profit impossible."

"Would greatly desire to see a more realistic appreciation of the

importance of our function to the annual profit and loss statement and to the future growth of our company."

"Because purchasing is a comparatively new and accepted function, it permits, unless duly restrained, an ardent desire on the part of other personnel to 'get into the act'. Which, on many occasions, has created confusion and embarrassment."

"What we seem to lack most is adequate time to investigate markets and new products."

"The purchasing department is tolerated as a step-child—a sort of 'necessary evil'. The purchasing department is frequently ignored in formulating policies—others presuming to speak for us."

"Purchasing is not considered by management as an essential department and is not considered in long-range planning."

Purchasing for a Company Cafeteria



Reichhold Chemicals' new headquarters building at White Plains, 25 miles out of New York City. The migration to the suburbs offers many advantages—and raises some new problems, such as feeding.

Photographs by Craig Studios

A BUSINESS MIGRATION is currently taking place—the relocation of executive offices away from the big cities where they have traditionally been concentrated. Within the past couple of years, such nationally known companies as General Foods, Nestle's, Standard-Vacuum Oil Company, and Reichhold Chemicals have left New York City and established executive headquarters in the suburbs, 15 to 35 miles distant. Others have also done, or are planning to do the same. And the trend is noticeable in other large metropolitan areas as well.

The reason for this exodus to the suburbs is not (as in the case of factories) a policy of dispersion because of the hazard of total annihilation of productive facilities in a possible atomic attack. Rather, it is due to the recognition that the

In-plant feeding is more than a utilitarian necessity. It can be operated as a fringe benefit and a highly effective morale builder.

By Earl E. Hughes

Manager, Executive Headquarters
Reichhold Chemicals, Inc.
White Plains, N.Y.

increasing congestion of the big cities, with the accompanying problems of housing and local transportation, is not conducive to getting the most value from the high-bracket salaries of the executives in management. In suburban headquarters, the executive can make better use of his time, free from the pressures and distractions that inevitably disrupt his planned

routine when his office is located in the big city.

However, most businesses moving into the suburbs find themselves confronted with problems that were not the concern of management in the city location. Suburban surroundings may be very pleasant, but neither the executives nor their indispensable clerical assistants can keep body and soul to-



Reichhold reception lobby. Attractive surroundings help maintain high morale. Each of the 70 executive offices and adjoining secretarial rooms is individually furnished in varying but harmonizing color schemes and furniture design. The same principles of arrangement and decor—spacious and gracious—are carried out in the cafeteria facilities.

Complete democracy reigns in the cafeteria. The top executives rub elbows with the newest file clerks, stand in the same line, eat the same food at the same tables, pay the same prices for their meals.



gether on country air at lunch time. They must have their meals and their coffee breaks.

In the city, such facilities have grown up with the growth of the city itself and the growth of the business in it. But when a business moves into the suburbs, feeding facilities are generally not equal to handling the sudden influx of hundreds of new customers. Where they do exist, they may be at unreasonable distances from the outlying parts of the suburban communities where the executive headquarters have been transferred. Therefore most businesses moving into the suburbs find themselves forced to provide in-plant mealtime facilities for their personnel. This is a fresh problem for management, and it places an additional burden on the purchasing agent for any such company that puts a premium on high personnel morale.

Company Operation Preferred

There are two ways of approaching the in-plant feeding problem:

1. The food concessionaire.
2. A company-operated cafeteria.

The first approach does not involve the purchasing department in the problem. But some of the bet-

ter industrial managements do not favor it because it does not present the same opportunity to build morale as does the company-operated cafeteria. In general, the food concessionaire has to look to his own profits and cannot be as flexible in meeting the varying wishes of the customers, who are really a "captive" aggregation so far as mealtime is concerned.

Yet such a captive aggregation is entitled to the fullest degree of mealtime satisfaction consistent with sound business practice. In many instances, the company-operated cafeteria does this better, particularly for a small volume operation. Further, when a business concern regards the establishment of a system of in-plant feeding as a fringe benefit and subsidizes part of the cost, then the operation must almost inevitably be undertaken by the company and not by a concessionaire. Then it does involve a purchasing operation.

The problems of buying for a cafeteria are basically similar, whether in-plant feeding is to be partially subsidized or operated as a break-even or profit-paying department. Purchases must, in each case, be related to the dollar return paid by the customer for the proc-

essed food. In the case of the break-even or profit operation, the customers pay the whole of the cost—the food, the labor of preparing and serving it, rent and overhead charges, depreciation of equipment, etc. In a fringe benefit operation, management assumes a part of the cost—in general, about 40%, but sometimes as high as 60%. As a rule of thumb, the captive customers are expected to pay the entire raw food costs and at least half of the labor costs.

Comparing the two systems, it is obvious that in a non-subsidized cafeteria, in order to assure the desired dollar return, the customer must either (1) be charged more for his meal; (2) be served smaller portions; or (3) be served lower grade food. For this reason, most managements favor the subsidy as a more effective morale builder.

But the problem for the purchasing department remains the same, with or without subsidy, because in relation to the return on the food sold, the only substantial variable in either case is the cost of the raw food. Labor costs, rent, and cost of equipment will not vary from day to day or from menu to menu. Suppose the average cost of a meal is \$1.00 in a cafeteria operated for profit, and 60¢ in a subsidized operation. In neither case could the purchasing department start serving caviar, for in the one case the profit would disappear and in the other case the company's contribution would soon exceed the budgeted sum.

That, of course, is an extreme illustration, but purchasing food for the company-operated cafeteria presents such situations daily on a smaller scale, and minor feats of legerdemain must be performed almost every day to keep over-all and average costs and prices in line. The captive customers have a right to expect, for example, that foods such as strawberries and melons

will be served in season. But since it is difficult to surcharge more than a 10% spread on such items, against a normal 50%, they must be offset by purchasing another item for the menu that has more than a normal spread.

A Specialist's Job

Buying food is a specialist's job, complex, detailed, and demanding daily attention. The purchasing agent responsible for production materials and operating supplies couldn't even begin to devote his time to it, along with other duties. Nor could he hope to familiarize himself with the almost day-to-day variations in the nature and costs of the products to be ordered, except on a full-time basis.

So, almost universally, the purchasing agent of an industrial concern, departing from his usual course and policy, must fully delegate the responsibility for cafeteria purchases to the cafeteria manager, exercising only the most general supervision on his own part. Therefore, if the question of setting up an in-plant feeding system comes up, the purchasing agent should insist on making clear to management that the first requisite is a top-notch, competent, thoroughly trustworthy manager to whom he can delegate this authority. The crux of sound purchasing, as exemplified in Reichhold's experience is (a) to provide a satisfactory menu, (b) that can be served at a price satisfactory to the customer, (c) while keeping within the subsidy on the dollar value of the food served. In other words, a sound economical spread must be maintained without pricing the meal out of the market,

and without sacrificing the quality or variety of the meals served.

The procedures followed at the Reichhold Chemicals headquarters in White Plains, N. Y., have been studied and emulated as a pattern for the well run company-operated cafeteria, by some of the best known names in American industry. They may be helpful in planning proposed feeding systems by other companies.

Reichhold's Policies

At the outset, it should be emphasized that Reichhold, which has always been a firm believer in the value of good personnel relations, operates its cafeteria as a morale builder for its executives and office staff. In evaluating these procedures, therefore, it should be borne in mind that the whole operation is geared to this aim, from the physical facilities of the cafeteria section to the actual meals themselves.

The purchasing department is in charge, but has delegated full authority to the cafeteria management to make any expenditures that will help achieve the ends in view. Originally, capital expenditures were restricted to amounts of \$100, except by special appropriation. This proviso has since been removed, both because it tended to cramp initiative and because the close limitation occasionally created undue operating delays. Now the policy is that when other than routine expenditure is contemplated, the cafeteria management simply discusses it with the Vice President in charge of Purchases, and decisions are made promptly.

At Reichhold, the subsidy is in-

tended to cover all the basic costs of running the cafeteria department except the cost of food raw materials and half the labor costs of processing the food. The two latter elements are borne by the customers in the price they pay for the meal.

Another basic policy is to purchase only top quality food. Food served is almost 100% fresh, with canned supplies almost non-existent. Even the soup we make from our own stockpot. Coffee is ground fresh for each batch. Buying, therefore, is necessarily on a hand-to-mouth basis. Because of this, we rely on local suppliers of reputation. Thus we get prime meat for the cafeteria from the same butcher who supplies the country estates of Westchester County, sometimes claimed to be America's highest income-bracket county. Our suppliers know that we do not cavil at prices. They also know that to maintain our custom, the quality must be beyond question.

The routine with our requisitions is slightly different from normal industrial purchasing operations, mainly because there have to be daily deliveries of many items.

The standard 8-part purchase order form is used, prenumbered and countersigned by the Director of Purchases. Orders are usually written up for each purchase, using already agreed upon prices from the vendor. The original is given to the vendor, and distribution of other copies follows standard procedure.

In certain instances—for example, the purchase of three large turkeys—the final order cannot be written up until the goods are delivered with the invoice showing aggregate poundage. In such cases,

(Please turn to page 320)

A smaller private dining room is provided for special occasions.

The lunch hour is a period for complete relaxation in pleasant surroundings. A comfortable lounge for employees adjoins the cafeteria.



Push-Button Purchasing



How punched card equipment and methods can be applied to purchasing procedures, bringing automation to purchasing work and helping the buyer do a more efficient, more constructive, and more profitable job

THE Atomic Age may be just around the corner. The Automation Age is already with us. While military authorities are thinking in terms of the "push-button war", the "push-button factory" in both manufacturing and process industries is already a reality.

What about "push-button purchasing"? It may be nearer than you think.

The purchasing director of a large midwestern company writes: "Picture yourself as purchasing agent of a manufacturing company in a mass production type industry such as electronics, automotive, aircraft parts, electrical appliances, etc. Today you have 50 employees in your department. In 1957, you know your department will be buying at least as much as you are buying now, and probably more. Yet your plans call for only 15 employees in 1957. This projection of a drastic reduction in personnel may seem frightening, but it is not intended to be so. Rather, it is meant to start you thinking and planning about what you can do with present punched card equipment (Reming-

ton Rand, IBM, and others) to lighten the work load and increase efficiency.

"The use of present day punched card equipment and methods is spreading rapidly to many new applications in the conduct of business. I am convinced that purchasing functions cannot be immune to such progress. For want of a better term, let us use 'purchasing automation' to describe the impact these office machines will have on purchasing methods. The purpose of purchasing automation is to accomplish the bulk of routine purchasing operations mechanically. Punched card machines provide us with an effective tool for this purpose."

Mechanize Routine

The left hand column of the accompanying chart tabulates the steps at present in a typical purchasing department of a company in a mass production type industry. Most of these functions are, frankly, routine. The more routine the function, the more adaptable it is

to purchasing automation. The right hand column outlines a parallel procedure utilizing mechanized records, which is described in detail in the succeeding section.

To put such a system into effect, the purchasing department will maintain two punched card files. The first file will contain current quotations of all qualified bidders, in punched card form. In cases where prices vary with quantities ordered, there will be a separate punched card for each of the different price groups submitted by a qualified bidder.

The second file will contain names and addresses, in punched card form, of all approved bidders. Each approved bidder will be assigned a serial number, and this number will appear on all quotation cards for that bidder as well as on his name and address card.

Most of the necessary machines for processing the cards would probably be kept in a punched card equipment center for use by all departments, instead of having machines assigned exclusively to one department.

The first four steps, setting up the production schedules for which purchases are to be made, is the same under both procedures. With Step 5, where requisitions are issued to set the actual purchasing operation in motion, purchasing automation comes into play. Let's take it from there.

The inventory control department, after studying the production plan and reviewing its own records,

prepares necessary purchase requisitions, using punched cards. Part numbers are punched in these cards at a rate of 1,500 cards per hour, or more. The remainder of the information desired by purchasing is written on the card by personnel in the inventory control department. The punched card requisition can be used as a traveling requisition if inventory control prefers to use that method. With this information from inventory control in the form of punched cards (one card for each item required) the purchasing department is now ready to buy what is needed to meet the production schedule.

The punched requisition cards are run through a collating machine (650 cards per minute, or more) which selects the companion cards from Purchasing's quotation file for each of the hundreds or thousands of items which must be purchased. Thus, punched card 10-00123 from inventory control, when it goes through the sorting machine, automatically selects all of the serial 10-00123 quotation cards.

Let us say that you have eight qualified suppliers currently quoting on and interested in furnishing part 10-00123. That would make a total of eight cards, one for each supplier. On each of these cards you have punched purchasing information according to a pre-arranged evaluation formula.

To explain this evaluation, let us say that for part 10-00123 (as well as for all parts of similar construction) there are seven factors you consider in making a purchase. These factors might be:

1. Delivered cost.
2. Present ability to deliver in standard delivery time.
3. Past performance as a supplier (all factors considered).
4. Quality of product.
5. Service (production and/or research assistance).
6. Capacity to produce.
7. Probable ability to supply in periods of shortages.

In your formula for part 10-00123, each of these factors would be weighted in accordance to its importance in the particular purchase. For example, delivered cost might be rated at 20%, present ability to deliver might be worth 30%, quality equal to 25%, and so on until each factor taken into account in the purchase has been considered carefully and graded according to its importance. The total of these percentages would be 100%, and any qualified bidder who rated 100% would be perfect in

SUMMARY OF PURCHASING OPERATIONS IN A MASS PRODUCTION INDUSTRY

Present (Manual) Methods	"Purchasing Automation"
1. Sales estimates are prepared.	Same.
2. Management sets production and sales quotas.	Same.
3. Production Manager determines overall production plan.	Same.
4. Production Planning makes detailed production schedules and initiates shop orders.	Same.
5. Inventory Control initiates and writes purchase requisitions.	Inventory Control issues punched card purchase requisitions.
6. Purchasing maintains file of names and addresses of all qualified suppliers.	Purchasing maintains this file on punched cards, assigning a serial number to each supplier.
7. Purchasing selects prospective suppliers for each item, checks to see whether price information is current, and writes to obtain quotations.	Purchasing maintains, on punched cards, current quotations from all qualified bidders, for each item. Purchasing mechanically collates current quotation punched cards for items to be purchased by matching them with punched card requisitions from Inventory Control.
8. Purchasing tabulates and evaluates quotations.	Purchasing mechanically evaluates punched quotation cards, sorting them in order of ratings as suppliers.
9. Purchasing issues purchase orders, transcribing description of item and all essential purchasing information, and providing extra copies as required.	Purchasing mechanically prepares purchase orders (except for quantities) using punched quotation cards and vendors name and address cards. Purchasing inserts, by hand, quantities on purchase order. Extra copies of purchase order are mechanically prepared in punched card form for follow-up, receiving, inspection, and price card file purposes, and other copies as required.
10. Purchasing writes follow-ups to obtain acknowledgments.	Purchasing mechanically follows-up for acknowledgments.
11. Purchasing sets up dated or tabbed file to indicate follow-up action and writes follow-ups to obtain deliveries.	Purchasing mechanically follows-up for deliveries.
12. Purchasing posts invoices on purchase orders.	Same.
13. Purchasing posts invoices on price cards.	—
14. Receiving accepts incoming shipments and writes receiving reports.	Purchasing mechanically records punched receiving report cards and inspection cards on purchase orders.
15. Inspection checks materials and writes inspection reports.	
16. Purchasing posts receiving reports and inspection reports on purchase orders.	Accounts Payable matches punched card receiving reports with invoices and mechanically writes checks.
17. Accounts Payable matches receiving reports with invoices and writes checks.	

each of the seven factors on which he was evaluated. It would be extremely rare that any supplier would rate 100%, any more than you would rate 100% if your management evaluated you on the basis of all the factors that go to make up a perfect purchasing agent.

Your purchasing department cards for 10-00123 are punched to indicate that you normally prefer three suppliers. As the eight cards are mechanically sorted, at 650 cards per minute, they drop into the slots in order of their rating—best supplier's card (highest evalu-

ation rating) in the first slot, second best in the second slot, etc.

Now you are ready to prepare the purchase orders—at a rate of 50 orders per minute, or more. Using a printing tabulating machine, the 10-00123 punched quotation card for the No. 1 rated supplier automatically reproduces all of the information needed (such as part number, specification number, f.o.b. point, routing, unit price, rate of shipment, etc.) on a regular size (8½ x 11") purchase order. The vendor's name and address are automatically reproduced on the order from the bidder's name and address punched card, by the same machine. In fact, all information necessary for the properly written purchase order is automatically entered on the order form, except the quantity. The quantity is left to be filled in by the buyer when he signs the order. By having the buyer insert the quantity on purchase orders at the last moment, it gives him a final chance to decide how many suppliers he will have for a particular part, and how many units are to be purchased from each supplier. All miscellaneous papers, such as acknowledgments, correspondence, shipping notices, etc., would be filed with purchasing's full size copy of the purchase order.

Immediately after the regular purchase orders have been written and signed, a sufficient number of extra copies are made in punched card form to satisfy the need for copies by purchasing, receiving, inspection, inventory control, and accounts payable. These extra copies are easily prepared by machine methods. Regular size copies would still be supplied to those departments needing copies, where there would be no advantage in their getting copies in punched card form.

Automatic Follow-Up

In the purchasing department, a spare punched card copy would be filed by part number to serve as a handy reference file. The purchasing department's master punched card copy of each order would be used for the following purposes: recording acknowledgments, routine follow-ups, invoice posting, and receiving report posting.

These functions would be accomplished as follows: First of all, the cards would be "aged" mechanically. The master cards would be punched when they are prepared so that they could be sorted out at regular intervals to enable the

buyer to check on them for acknowledgment and follow-up purposes. For example, the cards might be punched for the 10th, 20th, and 30th of the month, or perhaps at 5-day intervals, or whatever the buyer desires. These cards would be filed alphabetically by vendors. Each day, all of the cards would be sorted mechanically (at 650 or more cards per minute). Daily, the appropriate cards would be sorted out and given to the buyer. As soon as an acknowledgment is received for an order, this fact would be recorded by punching it in the master card copy of the purchase order (at 1,500 or more cards per hour).

From then on, the problem would be to follow-up on the order as required until delivery is obtained. The routine follow-up would be done mechanically. Each day, each buyer or follow-up clerk would be given a stack of punched cards which had been mechanically sorted out for follow-up purposes. The buyer would set aside the cards for orders requiring special attention (individual letter, wire, telephone call, or personal visitation). The balance of the cards—and this group should be in the majority—would be sent mechanically addressed follow-up letters, prepared at a rate of 50 letters per minute, or more.

Big Saving Possible

In this follow-up phase of purchasing, the use of punched card methods and machines would effect a great saving of time for purchasing personnel. Because of this saving in time, and because of the great speed with which the machines operate, you could well afford to do a much closer follow-up job than you are doing now.

The purchasing department master punched card copy of each order is also used for posting briefly, by hand, the vendors' invoices.

This does not mean, however, that purchasing automation stops at the point where the vendor ships the goods called for on the order. It carries on even after the goods are received. The receiving department, instead of writing out by hand the customary receiving report, uses a set of pre-punched cards furnished by the purchasing department at the time the purchase order is written. The receiving department punches the cards to record information regarding the material received, such as quantity, date, and shipping charges. (The vendor's serial number, order number, item description, etc., were al-

ready punched on the cards in the purchasing department.)

The No. 1 copy of the punched receiving report card is ready now to be forwarded to accounts payable. There the punched card not only substantiates the receipt of the material, but is also one of the basic tools used for mechanically preparing the cash voucher and issuing the check. The cards are routed to accounts payable by way of the purchasing department, where the receiving information shown is mechanically reproduced on the back of purchasing's punched card copy of the purchase order by a posting interpreter machine, at a rate of 45 cards per minute. This mechanical operation saves countless hours of clerical time in the purchasing department as compared with manual posting.

In a similar manner, sets of pre-punched cards would be used by the inspection department to report the necessary inspection information for each shipment received.

It Can Be Done!

The procedure outlined above indicates the potential savings and efficiencies which could result in purchasing for a company in a mass production type industry by the use of presently available data processing equipment. It is ready to use. It is a practicable system, developed jointly by the purchasing department and the systems and procedures department, in consultation with systems experts of the equipment manufacturers. Some modifications would probably be required in applying it to process industries or other types of manufacturing.

Other than in fringe areas of inventory control and accounts payable, where punched card usage is becoming more and more common, applications of these methods in purchasing has been extremely limited up to now. There are probably many in purchasing who feel that "it can't be done"—that the purchasing function is too complex to be mechanized. But keep in mind

(Please turn to page 316)

and here is how one purchasing department is using punched card orders for 60% of its maintenance inventory.

A "new look" in purchase orders

WEST A B		OR7018		RING		2201764		000120	
MANUFACTURER'S NAME		MANUFACTURER'S CODE NUMBER		DESCRIPTION		WM CODE		PRICE	
WESTERN MARYLAND RAILWAY COMPANY									
PUNCHED CARD PURCHASE ORDER									
DATE OF ORDER		QUANTITY ORDERED		TO BE DELIVERED		POINT OF DELIVERY			
JUN 27 1955		160		AT ONCE		HAGERSTOWN, MD.			
MPR'S NAME		MPR'S CODE NUMBER		DESCRIPTION		WM CODE		PRICE	

SEND INVOICE IN QUADRUPPLICATE TO
PURCHASING DEPARTMENT
HAGERSTOWN, MARYLAND

For the past year, the Western Maryland Railway has successfully converted the procurement of nearly 60% of its stocked parts to a routine machine operation. Purchasing negotiates the covering contracts. The repetitive release orders consist of standard punched cards run off in the tabulating department and sent directly to the supplier without a special order form or so much as a handwritten signature. It is handled practically as an inter-office procedure. At the same time, purchasing and inventory controls have been strengthened, and substantial operating economies have been achieved.

PURCHASING's editors have observed the system in operation at the general stores headquarters in Hagerstown, and bring you a first-hand report on how the system works.

AUTOMATION, insofar as handling paperwork routines is concerned, is not something that happens over night. Rather, it is the result of a gradual assimilation of existing operations and systems into a routine that lends itself to automatic operations. The present method used by Western Maryland Railway Company to issue punched card purchase orders is such a step.

Western Maryland's problem, solved by the punched card method,

is not unique among railroads, nor alien to many other industries. Some 18,000 items are stocked by the railroad; 10,000 of them—mainly diesel parts and air brake material—are supplied by the original manufacturer of the basic equipment or by a limited number of suppliers. For the purchasing department, the repeat ordering of these items, on which little choice of suppliers is exercised, represented an expensive, time consuming system of repetitive order writing.

There were further complications. Inventory records were kept separately at WM's 5 stores points. Requisitions went through the main stores headquarters in Hagerstown, then to purchasing in Baltimore. With this system, an accurate total

count of any particular item on hand was not readily available, and a considerable delay existed between the time of need and the placing of the order.

To improve this situation in respect to the 10,000 diesel and air brake parts, it was decided about a year ago (a) to concentrate all inventory control records on these items in the office of the superintendent and (b) to set up an ordering routine using punched cards.

Purchase Order Procedure

Western Maryland already had a fine tabulating department; with a variety of IBM punched card equipment. Setting up one more routine was not too difficult.

Automatic Ordering Procedure

An interview with F. W. Pettit

General Purchasing Agent
Western Maryland Railway Co.
Baltimore, Md.

WEST A B 087018
 MANUFACTURER'S CODE NUMBER RING
 DESCRIPTION 2201764 CCG 180
 WM CODE PRICE
 Material received
 as billed - R. J. Murray, S.K.
 per
 date
 TO BE DELIVERED AT ONCE
 POINT OF DELIVERY HAGERSTOWN, MD.
 ENTERED ON KARDEX
 DATE OF ORDER JUN 27 1965
 QUANTITY ORDERED 160
 PUNCHED CARD PURCHASE ORDER
 SEND INVOICE IN DUPLICATE TO ACCOUNTING DEPARTMENT HAGERSTOWN, MARYLAND

The duplicate copy of the "purchase order" is stamped as a receiving report and posted to inventory control record, then finally processed in Accounts Payable. Withdrawals from stock are also made on a card form adapted to later mechanical processing.

ADM 10 (FORMERLY 800)
 DATE STOCK CLASS & ITEM NO.
 DESCRIPTION OF MATERIAL (INCLUDE MFG. NO., IF ANY)
 QUANTITY
 TOTAL WEIGHT OR MEAS.
 SCRAP RELEASED
 CHARGE
 ISSUED BY
 RECEIVED BY
 FOREMAN
 CLASS SERVICE
 WM

Purchasing continues to follow its former policy of negotiating and issuing periodic blanket orders for each of these 10,000 items. Once this is done, a master card is punched for each item, to be used to prepare machine-duplicated pre-punched purchase orders in card form. Not all of the factors can be punched into the card; variable information must be omitted and added later, by hand, at the time the order is actually issued.

The IBM machines do a double job. They punch certain information into the card according to code, and also print the information (much like a typewriter) at specific locations on the card. At this punching stage, the information consists of manufacturer's name, manufacturer's code number for the part, description, WM's code for the part, and unit price. When the master card is made, seven duplicated cards are punched and forwarded to the superintendent of stores.

The stores department is now authorized by purchasing to order the items against the blanket orders in force without routing the orders through purchasing at Baltimore. In other words, stores issues release orders direct to the supplier. When an order becomes necessary, either on request from a stores location or as indicated by inventory control records, the stores clerk pulls the master record cards and two copies of the pre-punched order and submits them to the superin-

tendent of stores for approval. With his OK, the punched card purchase order form is completed with the insertion (by hand or rubber stamp) of the following information: date of order, quantity, date for delivery, and point of delivery.

The card does not require an authorized signature. The only indication of its being a purchase order is the imprinted phrase "Punched Card Purchase Order" and the company name. The suppliers understand that it is considered a true purchase order by Western Maryland, and accept it as such.

Since each punched card purchase order covers only a single item, the cards are accumulated and are mailed to vendors in daily batches. The second copy of each card, filled out exactly like the original, is forwarded to the stores point designated to receive the goods.

Receiving and Accounting

At the delivery point, duplicate cards are held in date sequence pending receipt of the incoming material. As the shipment arrives, the cards are pulled, checked for

quantity and identification only, and are then stamped "Received" and signed by the storekeeper. They are returned to Hagerstown for the next step in processing. At the office of the superintendent of stores, delivery information is posted to the master stock record. The card is then stamped "Entered on Kardex" and forwarded to account for final checking against the invoice. All cards processed in accounting must bear this imprint.

The system is further integrated and mechanized by using unpunched card forms for issuing material from stores. These cards are held by shop foremen, etc., and are filled in by hand to draw items from stock. These cards are passed on from local stores locations to Hagerstown, where item consumption is recorded, then to accounting for punching and processing.

Since the superintendent of stores starts with a set of seven pre-punched cards, and uses two cards as each order is placed, he is left with only one card after three orders have been issued. This card goes to the tabulating department where another seven cards are pre-

Well Planned Changes Promote Better Purchasing

An interview with J. W. Ruff, Director of Purchases, American Blower Corporation, Detroit, Michigan



The Purchasing Team. Key members of the purchasing staff meet frequently to discuss problems and propose better methods. Left to right: V. S. Chidlaw, L. S. Lockridge, R. Porter, M. A. Laughbaum, R. R. Osborn, J. W. Ruff, H. Stabnick, F. T. Westmoreland, B. Drumm, and R. Bourbonnais.

PROGRESS can only come through change. This applies to purchasing as well as to any other field. By streamlining methods and organizing for value, American

Blower Corporation's purchasing team has cut costs of purchases by \$115,000 in eleven months. In addition, it has slashed internal costs by many thousands of dollars

"We organized to give buyers time to buy"

THE primary aim of American Blower's purchasing organizational set-up is to separate direct buying activities from related service operations. There are three non-buying groups. Each is designed to assist the buyer in some specific phase. Two of these groups, Value Analysis and Follow-Up & Expediting, will be discussed separately because of the important changes that have been made in these areas.

The third group, General Clerical Services, is a new one. It handles

the typing of all purchase orders and requests for quotation and maintains a central purchasing file. Formerly, the personnel in this section was divided up among the individual buyers. As a result, there tended to be wide variations in work load and lack of centralized control. Now with this work under the direction of a single supervisor, a better coordinated effort is possible and buyers no longer have the additional burden of supervising clerical help. The group's supervisor is able to develop sound cleri-

cal procedures, forms, and other techniques to help this group perform its job in the most efficient possible manner.

cal procedures, forms, and other techniques to help this group perform its job in the most efficient possible manner. Much of the credit for these accomplishments belongs to a relative newcomer to the purchasing profession—American Blower's Director of Purchases, J. W. Ruff. Before he entered purchasing two years ago, Mr. Ruff's entire business career, interestingly enough, had been spent in various sales and engineering positions.

There is no doubt Mr. Ruff is quite correct when he says, "Selling experience helps in dealing with salesmen." But how does a newcomer go about learning the specific details unique to purchasing? One of the first things Mr. Ruff did was to become active in the Purchasing Agents Association of Detroit. He is currently serving as Publicity Chairman. A program of self study helped too. Mr. Ruff reports that "the literature of N.A.P.A., the local association, and PURCHASING were of tremendous value."

How well Mr. Ruff has learned purchasing is amply illustrated by the progress he has made in developing his department into such an effective arm of management. Here are the highpoints of some of the changes Mr. Ruff has made:

cal procedures, forms, and other techniques to help this group perform its job in the most efficient possible manner.

Centralization of the clerical function has already produced one outstanding example of increased efficiency. Output of the two purchase order typists has been increased at least 12% as a result of a careful review of job responsibilities. These typists were once responsible for registering the requisition, typing the order from the data written on the requisition,

and then distributing the completed order. Now they are responsible only for typing the order. The other jobs have been delegated to other people.

Typing efficiency has also been increased by placing all incoming requisitions in a 6" x 9" file tray indexed from 1 to 31 for the days of the month. Except for emergency orders, typists are always working on the oldest orders first.

The purchasing staff at the com-

pany's home office in Dearborn, Michigan, consists of Mr. Ruff, six buyers, a value analyst, two supervisors of the non-buying clerical and follow-up groups, two expeditors, and nine clerks. In addition, six people handle purchasing for the company's San Leandro (California) and Columbus (Ohio) factories.

There is always an exception that proves the rule. At American Blower the exception—organiza-

tional—is motor buying. Unlike the other commodity buying activities, it is organized into a separate group and handles its own posting and follow-up. The reason for this is the nature of the product. Motors and controls are purchased and directly incorporated into the company's products with little or no additional operations performed on them. They are extremely important cost-wise, and their dollar volume is substantial.

"We completely revised our follow-up procedures"

THE basic reason for a separate follow-up and expediting group is to relieve the buyers of detail work so that they have more time to buy. This purpose is defeated if personnel interested in getting delivery information don't have confidence in the follow-up group and continue to contact the buyer anyway. The best way such a group can gain the confidence of all interested parties is by being so efficient that information can promptly and accurately be obtained.

American Blower has made tremendous improvements in its follow-up system. Under the old system, purchase orders were kept in wooden carts divided into numbered sections. One-inch expansion folders were filed in each section.

Each folder contained fifty copies of open purchase orders. The orders were filed alphabetically by vendor name and sub-classified by order number.

The new system, which uses Visible-Record carts with removable trays, has increased efficiency enormously. Orders stand upright in the trays with one-inch of margin exposed. Vital information about the order is noted on the margin. Included is a signal indicating the date when follow-up is required.

Here are some of the advantages of the new system:

1. Sixteen orders can be checked at a glance without touching a single order.

2. It takes 90% less time to review 1180 orders (a total of three

full trays, or one cart) than it used to take with the old system.

3. Total time for all clerical operations has been reduced by 80%.

4. Since the trays are removable, work can now be more easily distributed to department personnel.

5. It is now practical to have excellent follow-up control on 80% of the outstanding open orders.

6. Better filing technique makes for faster location of a given order. Filing is now by product and vendor—first alphabetical, then numerical. For example, under "M" in the A-Z breakdown, there is the category "Metals." In this category, metal producers such as U. S. Steel are listed in alphabetical order. Orders are then filed in numerical order for each supplier.



Before

Former follow-up system was cumbersome and slow, required finding and refiling of individual orders, discouraged constant review.

and

After

New filing equipment and system cuts clerical and reference time by 80%, permits closer follow-up on all open orders.



"We instituted a cost reduction program"

AMERICAN BLOWER uses a dual approach to cost reduction. Each buyer is expected to initiate and carry out cost reduction projects. In addition, a staff value analyst reporting directly to Mr. Ruff works full time on cost reduction both with buyers and other departments in the company.

In general (and there is no hard-and-fast rule on this), buyers work on bringing down the cost of parts or materials that have already been released for production. The value analyst devotes most of his efforts to products or components that are

still in the design stage. By working closely with engineers, he contributes a great deal toward solution of such mutual purchasing-engineering problems as getting standard off-the-shelf components incorporated into designs both to keep down unit costs and to eliminate expensive special tooling.

One excellent example of how value analysis paid off was a Class 2 Gyrol Fluid Drive the company makes. This unit was designed to be as universal as possible in application. However, it was still necessary to assemble the external

oil cooler at the factory. This meant that the company's field engineers had to get precise details of how the customer was installing the unit. Then, rigid piping was cut to size and assembled at the factory so that the unit would precisely meet the customer's requirements.

Purchasing's value analyst investigated substitution of flexible pipe. He knew the material would cost more than the rigid pipe but thought this would be more than offset by savings in engineering time (with the rigid pipe, each installation had to be drawn up in

detail) and shop costs. Sales and engineering checked purchasing's proposal and concurred..

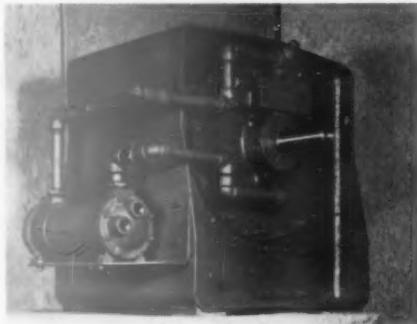
With the flexible hose, the customer can cut the pipe and assemble the external oil cooler himself to suit his own needs. Thus, there is now complete flexibility in the design of the unit. And there is now a direct cost saving of about \$26 per unit since neither the shop nor engineering now need be con-

cerned with measuring and cutting lengths of rigid pipe to size.

Although projects such as this have yielded handsome returns to the company, cost reduction is by no means the exclusive prerogative of the value analyst. All buyers are continually endeavoring to get better value. They report their price increases and reductions to the Director of Purchases every month. Price changes resulting from engi-

neering changes or general market fluctuations are not included in these reports. Only those changes that are reasonably within the buyer's control are reported.

Mr. Ruff combines all of the price change reports into a general report to management. Best indication of the effectiveness of the company's cost reduction program is the net saving of about \$115,000 achieved in its first eleven months.



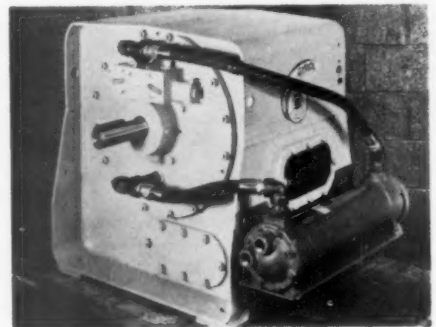
Before

Former design required engineering and fabrication of rigid pipe assemblies for each unit for each individual customer's installation.

and

After

Flexible hose enables customer to make his own connections to fit installation conditions, and saves \$26 in cost per unit.



"We redesigned old forms, added new ones"

New Type Purchase Order. Old style pin-feed continuous purchase order forms required typewriters equipped with pin-feed platens. A potential bottleneck was eliminated by changing to snap-out forms. Imprinting the tax status and the name of the Director of Purchases on the new forms saves 63,700 individual hand stamping operations yearly. Combining the purchase order and receiving report in a single form reduces typing time.

Aid to Sales. Many of American Blower's products are sold on a design-and-build basis. It is extremely helpful to sales engineers if they can accurately estimate delivery dates for potential customers. One big factor affecting delivery is the lead time required for purchased components and materials. Purchasing's monthly forecast of lead time for major components has been of immeasurable assistance to salesmen in the field who are frequently required to make quick estimates of delivery dates.

Handling Quotations. In the past, quotations were solicited from vendors by writing individual letters. Typing costs have been reduced with snap-out quotation request forms that permit three sources to be queried with a single typing. The top copy of the form is retained by the buyer and used as a recap sheet. Each source gets two copies of the quotation request and returns one to the buyer with prices, delivery, etc., indicated.

Change Notices. Purchase orders used to be amended with a letter-style change notification. The job is

now done more efficiently and economically with a 5-part snap-out form designed for this purpose.

AMERICAN BLOWER CORPORATION
DIVISION OF AMERICAN ROBEK & STANDARD BATTERY CORPORATION
DETROIT 22, MICHIGAN, U. S. A.
PHONE WESTER 3-1665

ORIGINAL PURCHASE ORDER

DATE: _____

TO: _____

FROM: _____

QUANTITY: _____

DESCRIPTION: _____

TAX STATUS: ☐ TAXABLE ☐ NON-TAXABLE ☐ EXEMPT

AMERICAN BLOWER CORPORATION
DETROIT 22, MICHIGAN

PURCHASE ORDER CHANGE NOTICE

DATE: _____

OUR ORDER NO.: _____

YOUR REFERENCE: _____

PLEASE CHANGE ORDER ONLY AS INDICATED BELOW AND RECOMMENDED BY ATTACHING THE ATTACHED FORM.

OLD FOR: _____

NEW FOR: _____

OUR ORDER DATE: _____

YOUR DELIVERY SCHEDULE: _____

AMERICAN BLOWER CORPORATION
DETROIT 22, MICHIGAN

SUMMARY

DATE	NUMBER
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ITEM AND SPECIFICATIONS

NUMBER OF DAYS REQUIRED FOR DELIVERY

Return Pink Copy with full information to: _____

Federal Supply Service Adopts Commercial Techniques

Survey by merchandising consultants from industry charts course for reorganization of purchasing division and stores methods in the government's vast supply operation

THE Federal Government, through its General Services Administration, is putting commercial merchandising techniques to work in its handling of the purchase and distribution of materials. The "Plan" is the fruit of an exhaustive study recently made of Federal Supply Service operations by Messrs. Carl Kresl and Hess Kline.

Mr. Kresl is a retired Sears-Roebuck executive who spent many years dealing with contracting problems and warehouse management for that company. More recently, he worked with the Hoover Commission in its studies to improve the operation of Federal agencies. He also helped the State of Illinois work out some of its knottier purchasing and supply problems.

Mr. Kline is a well known authority on merchandising, with a lifetime of experience in department stores and the food industry. He is a former Vice President and Treasurer of Food Fair, Inc., and has served as a consultant on food problems for others. He is also well versed in governmental supply programs, as consultant to the Puerto Rican government, and working with governmental food procurement activities on an international level.

The combined experience of these two men seemed ideally suited to the objective of an outside appraisal of FSS operations. Therefore, in 1954, Mr. E. F. Mansure, Administrator of General Services, invited them to make the study.

The Job of FSS

The Federal Supply Service is a component of GSA. It has responsibility for the entire gamut of supply management—utilization and disposal, specification development,

By Clifton E. Mack

Commissioner of Federal Supply
General Services Administration
Washington, D. C.



Responsible for putting the new policies into effect are (l. to r.) Robert Daly, Director, Stores Div., FSS; Lloyd Dunkle, Director, National Buying Div., FSS; Clifton E. Mack, Commissioner, FSS, GSA.

procurement, storage and issue, motor vehicle management, inspection, etc. The new plan basically affects the procurement, storage and issue areas.

Today, FSS has practically all civilian agencies of the government as its "customers" for standard supplies and equipment. It also is serving the military establishments with commercial type items to an increasing extent, providing them with

the same types of standard items that are also used in volume by the civilian agencies.

Indefinite quantity term contracting runs to about \$325 million per year, with issues from stores warehouses currently running about \$80 million per year. Both figures are on the increase, particularly the issues from stores centers operated by FSS at strategic points throughout the country.

Consultant Carl Kresl (right) makes a first hand inspection of the GSA store at Los Angeles, with Regional Director Robert B. Bradford.

Commissioner Mack and Consultant Hess Kline look over the shipping set-aside area at the GSA store in Kansas City.

Approximately 50,000 items course through the schedule type contracts, while about 10,000 are actually handled in the 12 GSA stores centers under FSS control. A number of direct delivery programs also are operating, involving shipment to the consuming agency of such things as refrigerators, automobiles, household and quarters furniture, etc.

The actual conduct of this multifaceted program has been a regional activity. The Central Office staff of FSS, at the GSA Washington headquarters, has done the necessary planning and administration to equip the buyers and distribution staffs in the regional centers to carry on the actual work. The major portion of term contracting, which involves deliveries direct to customers throughout the country, has been done from Regional Offices in Washington and New York. A substantial amount of local buying for needs within given geographic areas is handled by the FSS staff in each region. Finally, some national and zonal programs have been in effect, in which one region handled contracting for other regions.

Basic Objectives

Underlying reason for asking Messrs. Kresl and Kline to review FSS activities was to make sure that we were overlooking no opportunities to apply any technique that might provide a more efficient service to our customer agencies.

Times change, agency customers expand and contract in size and needs, geographical and economic problems are ever shifting. But throughout these changes, the objectives of FSS remain relatively constant.

Principal objective is to ensure prompt and efficient service to customer agencies. The average civilian agency of government is wholly engrossed in its own day-to-day work, assigned by Congress, and not in supply problems. Yet a continuing flow of needed supplies is an essential ingredient of any agency's work. To ensure that flow has been the job of FSS.

The parallel objective is, of course, to do this job as efficiently and economically as possible. Insofar as

the customer agency is concerned, the test of economy is the delivered price of the item. But the factors which go into making up that price are the element of FSS operation that have to be examined separately so that trimming can be done wherever possible.

Kresl and Kline took a hard, critical look at the frequently heard thesis that government buying is "different" because government itself is different. They analyzed this by taking up each of the individual situations which have contributed to that doctrine. They found that commercial practices developed by the American competitive system are, in general, well suited to a government procurement operation of this type.

Their first recommendation, which has already been approved by Administrator Mansure and is now in partial effect, was the creation of a National Buying Division and an internal realignment, within FSS, of the ways in which certain functions are to be handled. This has the following effects:

Recommendations for Change

First, as to the supplier, there is no change in the method in which he deals with FSS as a potential vendor. His points of contact and his bidding procedures remain the same. However, contracting techniques will change progressively to conform to closely as possible to commercial practices.

Second, the internal organization as it relates to personnel also remains the same. The change comes in assignment of responsibilities.

The National Buying Division is created as a separate entity within FSS to do a specific job—to provide commodity specialization in developing buying programs and to perform actual buying where advan-

tages will accrue through central contracting. Existing national or zone procurement assignments to regional offices are not being transferred at this time, pending review and consultation with the regions involved on the merit of such transfers.

New contracting techniques designed to assure continuing availability at source of supply will be employed in both national and local stock replenishment buying. Further consolidation of items for purchase on a national or some basis will be accomplished gradually, and only after it is clearly established that tangible advantages will result.

Once the activities of the National Buying Division are fully operable, and new contracting techniques established, the effects on the distribution apparatus of FSS can be readily seen.

When contracts are established for an item with one or more suppliers, the source of needs is firmly established. The region knows it can call forward its requirements within a stipulated period. It knows almost precisely the lead time needed to keep the pipeline into the stores center filled in an orderly fashion. The result is that inventories can be reduced in relation to total business. Any technique that enables the store to carry less on hand and give the same (or better) service is certainly worth installing.

To insure closer attention to distribution problems, the local procurement staffs in the regions will move closer to the distribution centers themselves. There, "on the ground," they can keep in constant touch with their counterparts in the Stores Division of GSA and can call forward needed supplies from the contracts made by the National Buying Division. At the same time, they can carry on their local buying

(Please turn to page 314)



LUMBER BUYING TRENDS

By **A. J. Diebold, Jr.**
President, Forest Lumber Co.
Pittsburgh, Pa.



Industry is using more lumber than ever before.

Four-state survey shows changing patterns of lumber buying practices, new emphasis on quality, and progress in distribution methods

WHAT are industrial purchasing agents doing about their lumber problems, and how have buying practices been affected since the end of World War II? To get some light on this question, we recently polled industrial lumber buyers in Ohio, Pennsylvania, West Virginia, and New York (excluding New York City). It was felt that replies from a limited area, with similar buying conditions and problems, would be more meaningful than a broader survey in which totally different conditions would be compared and averaged. 106 purchasing agents participated in the study. Their answers give a highly informative picture of resourcefulness in meeting new trends.

Transportation and Handling

The first significant trend noted relates to transportation and handling of lumber, where a quiet revo-

lution seems to be going on. It has its base in two conditions, (a) the high cost of railroad freight, and (b) the extra cost and inconvenience of handling lumber brought in by box-cars. Plants without railroad siding are particularly affected, since an average extra cost of \$5 per M board feet is involved under that condition.

These two factors have caused a shift, by 27% of the buyers, to a greater use of trucking and away from rails—a shift that has been growing, steadily in the past 10 years.

On the other hand, the railroads continue to be the major carrier of lumber to these firms, and have in fact increased their volume despite the percentagewise to more trucking use. And the picture looks good for the railroads recapturing some of their lost territory. But before discussing that, let's look at

what they are up against in some lumber buyers' minds. Here are comments by buyers who are increasingly ordering truckload deliveries:

"T/L quantities can be unloaded at our plant, eliminating haulage from R. R. siding."

Timber demands of the pulp industry have diverted some sources from industrial supply.



"Truckloads from the South are available, making it unnecessary to carry as large an inventory."

"Has been slight diversion to truckloads because of better service on short hauls."

"Freight too high."

"Using local hardwood instead of gum from South because of freight rates."

"Freight and handling charges raised final destination price too high to handle cars."

"Quicker service by truck, and easier unloading. Railroad service is deteriorating all along the line."

"To reduce inventories on high price lumber."

"More trucking in last 10 years due to better roads, trucks, and unloading equipment."

While the growing trend toward trucking is definite, in terms of board feet transport it is less important than the comments indicate. In the group surveyed 34% of the buyers order carloads exclusively, 32% use truckloads exclusively, and 34% use both rail and truck. As might be expected, the larger consumers depend primarily on rail. Not all of the buyers reported their actual total volume. Among those who did, the replies showed 4,624 carloads and 4,778 truckloads. Roughly estimating a carload at 27 M board feet and a truckload at 8 M, we find rail deliveries exceeding truck deliveries by more than 3 to 1 in shipments aggregating slightly more than 163 million board feet.

Regardless of current preferences, lumber buyers are sure to benefit from this competition between two major transport methods. Well aware of the inroads of trucking, the railroads have for some time been shipping a steel strapped package of lumber on flat cars. In this form, it is as easily, or more easily, unloaded by cranes than from most trucks. Because of the quantity and lengths that can be accommodated on flat cars, such delivery offers advantages over trucks to some buyers, and more interest on the part of buyers could increase this type of delivery.

Some railroads are now removing the roof and sides of old boxcars, shoring up the ends as bulkheads, and devoting them to lumber transport. Another innovation is anticipated in "piggy-back" delivery, whereby lumber trucks will be carried on flat cars and make delivery direct to the purchaser's plant. These possibilities are worth discussing with lumbermen and railroad suppliers. One change seems assured: the hand unloading of box-

cars is due to pass from the picture as non-competitive.

The survey shows that lumber buying has increased among this group in the past 10 years. 24% of the buyers report that they use more lumber today than 10 years ago, in proportions ranging from 20% to 1000%. This more than offsets (by nearly 2 to 1) the decreased usage reported by 16% of the buyers for the same period.

Demand Is Increasing

This increased lumber buying does not represent a greater use of wood per item manufactured or packaged, but rather an upsurge in the amount of goods that are manufactured or packaged. For example, a refrigerator manufacturer now uses a cleated package instead of a crate, but he is putting out so many packages that his wood consumption is substantial and growing. If crates were still used, he would have difficulty with supply.

Further, since less lumber is used per item, greater dependence is placed on the wood which is used, resulting in more emphasis on quality than in the past. Each foot of lumber must do more of a job. This consideration is reflected in the wide variety of species purchasing agents select for their particular applications.

The species chosen are primarily dictated by the use to which the lumber is to be put.

48% use lumber entirely for fabrication, in products including furniture, ladders, boats, boxes, toys, etc.

12% use lumber exclusively for crating and/or blocking.

22% use lumber for both the above purposes.

9% use lumber only for special purposes—construction, patterns, and the like.

8% use lumber for all three purposes.

The group as a whole utilizes 12 species of softwoods and 16 species of hardwoods (including mixed hardwoods). 69% use softwoods; 82% use hardwoods; 51% use both, and many of these use two or more species in each category.

Softwood usage is broken down as follows:

32%—White pine (including Ponderosa and Idaho pine).

25%—Douglas or white fir.

23%—Yellow pine.

10%—Canadian spruce.

Less than 10%—Hemlock, Sitka spruce, redwood, cedar, cypress.

Hardwood usage shows:

30%—Oak.

15%—Maple.

13%—Poplar.

12%—Mixed hardwoods.

11%—Gum.

7%—Cherry.

7%—Birch.

5% or less—Mahogany, walnut, ash, beech, basswood, elm, korina and other imported hardwoods, magnolia, sycamore, and willow.

One tendency evident from these statistics is a shift from Eastern and Southern pine toward white pine, Douglas or white fir purchased from the West. Purchasing agents are finding this change practical because (a) the reduced stands of New England pine and the resulting smaller mills that work them mean that New England does not always supply the longer lengths and superior milling required for some operations and (b) in the South, the demands being made on yellow pine by the pulp makers and the industrial development there have made this wood less available. Meanwhile, the West, learning the lessons of initial cutting in other areas, and placing its operations on a scientific sustained yield basis before its virgin timber was cut off, has been able to justify the country's largest mills equipped with the best machinery.

Shifts in Usage

Nevertheless, yellow pine continues to lead the field for blocking and crating by a wide margin—about as much as all other species combined.

Greater use of local hardwoods is a noticeable factor in that group. Second growth hardwoods are now coming of age, and into the market, replacing the stands which were levelled in the original lumbering out of this area. In many cases, they can be bought in the plant vicinity, with only a short truck haul. We can only hope that the new stands will eventually be harvested on a sustained yield basis. Some states arrange taxes with this in mind.

Hardwood consumption has been increased by the greater use of hardwood pallets throughout industry. In the Tri-State area, the hub of the region polled, it is estimated that about 2 million pallets are consumed annually.

Finally, a trend affecting both soft and hardwoods is the comparatively better availability of many species than in the post war period of shortage. Users who could get only pine during that time are returning to the use of oak and maple which are now available.

All buyers were interested in the specific characteristics of wood to

give the best service or produce the best products at competitive prices. The characteristic most frequently stressed was workability. White pine, walnut, and poplar rated high in this respect. Other qualities desired were, in order of mention: strength, appearance, holding straightness, grain, and freedom from knots.

The over-all considerations influencing lumber buying are, as with most commodities: quality, price, availability, service, and delivery. Quality headed the list with 28% of those surveyed, and was the subject of frequent added comment. Buyers obviously are finding it harder to secure the quality they desire.

Quality Factors

The emphasis on quality partly reflects the greater demands many purchasers are putting on the lumber they buy. It is also influenced by the fact that high quality lumber is less abundant than it used to be, since virgin lumber is more scarce and farther out in the wilderness. Second growth lumber is occasionally cut too soon, and average yield from such sources cannot compete in quality, lengths, clearness, and other desirable characteristics with the virgin timber we once were accustomed to. Nevertheless, good, high quality lumber is available to any buyer who will pay for the proper grade.

Several complaints were voiced about confusion in grades, and not getting the expected quality. What really changed is that mills are grading more closely, to get maximum yield and profit from their timber. Grading itself has not basically altered, except for greater standardization. Bonuses of better-than-grade lumber have largely been eliminated.

Better drying is a characteristic sought by many buyers. For air-dried lumber, longer range planning will help to secure this. When demand is strong, smaller mills may tend to slight the drying process. The way to assure a supply of good air-dried lumber is to purchase in the summer and fall, for drying in these seasons takes a minimum of time, and demand is down. Inventory problems may make this impractical for some buyers.

Many mills now kiln dry all or part of their product, making them largely independent of the seasons. Kiln drying assures proper moisture content and produces a highly satisfactory product for most users. It



Motor transport of lumber has made great strides.

can have the drawback that, if not well done, it tends to case harden the lumber.

Prices and Sources

Longer range planning can also improve another situation of concern to buyers—price and availability. Price peaks and valleys in this industry are the natural result of a seasonal business influenced by irregular buying. The trend toward lower inventories favors spot buying and makes the price fluctuations sharper.

The remedy lies in having a supplier or suppliers who can make available to the purchaser the species of lumber that will do his job at the best price at the time. If the Northwest is snowed in, or the South is having its rainy season, alternative species can be suggested for many uses, allowing quick delivery and avoiding premium prices for items in short supply. A flexible buying program, allowing for changes in species, and taking advantage of the best availabilities and prices nationwide and throughout the year, can level out the peaks and valleys in the light of particular requirements.

In the search for efficient, low cost, dependable supply, lumber buyers turn to various types of distribution.

73% in this group buy from wholesalers, citing the advantage of versatile, year-around supply and service.

71% buy directly from the mills, particularly for large quantity purchases and where local area buying is involved.

17% buy from retail lumber yards, chiefly for small lots.

It is obvious, from the percentages quoted, that more than half the buyers in this group patronize more than one type of source, according to the nature of the need.

Their chief difficulty in vendor relationships appears to be in the area of quality, where shipments sometimes fall below expectations. This difficulty actually stems principally from the nature of the

product rather than the reliability of the supplier. The imponderables of dealing with a crop product affected by the vagaries of nature as well as by human fallibility do leave a margin of error, but any reputable supplier will be found anxious to make good.

Another concern of a number of purchasing agents (for example, prefabricated house manufacturers) arises from buying lumber in more fully processed form. This is being done to a steadily increasing degree, but there is a limit beyond which it will not be practical. Again, this appears to be a matter for negotiation with the source, whose main business of producing conventional lumber should certainly be held in mind. In the competition of wood with other materials, it is logical to expect some improved response in this regard, as in other features where lumber might lose ground because of not meeting buyers' needs more fully.

Summary

In general, our survey shows:

Lumber purchasers are alert to new trends. They have adjusted their buying to take advantage of changing situations.

Their continuing search for value has produced results in speedier and more economical transportation and handling.

They are interested in higher quality, indicating a lumber application that will bring them a greater return on the lumber dollar.

They are exploring a wider variety of woods for use in their products and to protect shipments.

They are interested in conserving space and holding down their lumber inventories. Possibly, in some instances, this is a policy that would bear re-examination in the light of securing the desired quality, price, and conditioning of lumber to the best advantage.

Finally, they are using more lumber than ever before. This very demand should mean improvements in supply and in meeting their future requirements more exactly.

Acceptances That Create Contracts

Valid acceptances must be identical with terms of the offer, but modifications can be suggested without breaching the contract

By Albert Woodruff Gray

THE Federal Government advertised for bids for the purchase of 168,400 yards of aircraft linen, bids to be submitted on February 2nd, and bidders to be notified three days later of the yardage awarded them. Upon notification of the award, 10% of the price was to be paid and the balance within thirty days.

The bid of a New York wholesaler submitted on February 2nd was, "I herewith submit my firm offer for approximately 168,400 yards of 38-inch, grade A natural brown Irish Airplane Linen. Specifications: minimum threads, warp and filling, 90. Maximum threads, warp and filling, 105. Minimum weight 4.5 oz. per square yard, f.o.b. at present location. Said linen as per sample. Goods to be 'firsts'."

The wholesaler received a letter eight days later from the New York office of the Salvage Division, "This is to advise you that Washington has awarded you 150,400 yards of 38" grade 'A' Airplane Linen at 93 cents per yard. Inasmuch as we have your check for \$13,987.20 to cover 10% of the sale it is requested that you send this office certified

check for \$125,884.80 to cover the balance together with your shipping instructions."

Later the purchaser sued the government, claiming damages for a breach of warranty for the failure of the government to deliver "firsts" of the grade of linen purchased under the contract created by this bid and the subsequent letter from the United States Salvage Division, which the purchaser contended was an acceptance of that offer.

The Supreme Court of the United States said in its disposition of the appeal by the purchaser from an adverse decision by the Court of Claims, "We do not think that the letter of February 10th was an acceptance of the offer of February 2nd. It does not acknowledge its receipt. It does not purport to be an answer to it. It differs from it in the yardage of the linen mentioned by 18,000 yards. It contains no reference to the quality of the linen. It refers to a check for 10% of the price bid on 150,400 yards of linen, which could not have been sent in the letter of February 2nd, for it was for a less amount.

"We must conclude that the gov-

ernment never entered into a warranty of the quality of the linen and so no obligation arose from the breach. It is well settled that a proposal to accept or an acceptance, upon terms varying from those offered, is a rejection of the offer and puts an end to the negotiation, unless the party who made the original offer renews it or assents to a modification suggested."

Seller Not Bound

This same lack of coincidence between offer and acceptance featured in a suit before the Arkansas Supreme Court a few years ago. There a lumber dealer wrote a purchaser offering to sell a car of 6/4" beech lumber for \$33 per thousand feet. The letter said, "I will accept an order for 100,000 feet of this stock for the next ninety to one hundred days shipment."

Two days later he received an order from the purchaser for, "100,000 ft. 6/4" Log Run beech at \$23, \$33 and \$43. 100,000 ft. 8/4" Log Run beech at \$23, \$33 and \$43."

The lumber dealer replied to this, "We did not offer you any 8/4" cutting. However will try and fill order as you have written it."

Later when the seller sued to recover an unpaid balance for the 6/4" beech the buyer interposed in his defense a counter-claim for damages for what he contended was a breach of contract in failing to ship the 8/4" lumber.

In sustaining a judgment in favor of the seller the court said, "It is elementary law that where a party submits an offer of a contract, this offer must be accepted without reservations. Any reservations or limitations on the acceptance, in the law, is a rejection of the offer."

This court supplemented with a quotation of the usual statement of this rule from a legal writer, "The acceptance to be effectual must be identical with the offer and unconditional. Where a person offers to do a definite thing and the other accepts conditionally or introduces a new term into the acceptance, his answer is either a mere expression of willingness to treat or it is a counterproposal, and in neither case is there an agreement."

Tentative acceptances of this character that lack in their assent the meeting of the minds of the contracting parties, which is held by courts to be essential to a valid and enforceable contract, constitute a rejection of the offer to which they refer.

A letter to a manufacturer from a railroad was, "Please quote me

prices for 500 to 3,000 tons 50 lb. steel rails and for 2,000 to 5,000 tons iron rails."

The manufacturer replied to this, "We do not make steel rails. For iron rails we will sell 2,000 to 5,000 tons of 50 lb. rails for \$54 per gross ton spot cash." The railroad telegraphed in reply, "Please enter our order for 1,200 tons rails."

The manufacturer failed to ship the 1,200 tons of this order and the railroad sued for damages. The decision that there was no contract on which damages could be claimed was appealed by the railroad to the United States Supreme Court.

"As no contract is complete without the mutual assent of the parties, an offer to sell imposes no obligation until it is accepted according to its terms," said that court in affirming the decision of the lower court. "So long as the offer has been neither accepted nor rejected the negotiation remains open and imposes no obligation upon either party, and one may decline to accept or the other may withdraw the offer and either rejection or withdrawal leaves the matter as if no offer had been made."

"A proposal to accept or an acceptance, upon terms varying from those offered, is a rejection of the offer and puts an end to the negotiation unless the party who made the original offer renews it or assents to the modification suggested. The other party having once rejected the offer, cannot afterwards revive it by tendering an acceptance of it."

Sense Not Altered

Difficulty often occurs however, in distinguishing between a counter-offer and an acceptance when the words employed are different from those of the offer or when the acceptance includes supplemental terms or suggestions that do not convey a complete acceptance although they may superficially seem to do so.

In a controversy before a New York State appellate court a few months ago, one member of a partnership had offered in a letter to the other member of the firm to buy his interest for \$200,000, "plus one-half of the value of the accounts receivable at the time of the sale and one-half of all cash owned by the company at the date of sale."

This other member of the firm had replied, "I hereby elect to accept your offer to purchase my interest in our partnership business in accordance with the terms of such letter, to wit, a cash settlement of

\$200,000, plus one-half of the value of the accounts receivable at the time of sale and one-half of all cash owned by the company on the date of sale."

To this however the seller added, "I will be ready, willing and able to give you a complete bill of sale and a sufficient conveyance to you of my interest in the real estate as may be required to effectuate such a sale as of December 31st, 1952, or sooner if you so choose. Such instruments will be delivered to you properly executed by me on such date fixed by you not later than December 31, 1952, upon payment by you in accordance with the terms of your letter."

A week later this seller received a letter from the purchaser, "I am unable to purchase your interest in the business in accordance with the proposal contained in your letters. I therefore reject the same."

The seller sued for damages for breach of the contract and the buyer interposed the defense that no contract had been made.

"There is no doubt as to the rule requiring an acceptance to be as specific as the offer, which in turn must be so definite in its terms or require such definite terms in the acceptance that the promise and per-

The offer was made to a California buyer of two carloads of "choice" potatoes for shipment the following week, who in his acceptance of the offer substituted strictly choice" and changed the delivery date to one car the following week and the other car a week later.

The seller set up in his defense to an action by the buyer for the failure to deliver the potatoes under this agreement, that by this variance between the offer and the buyer's acceptance, no contract had been made.

"The seller claims that the acceptance must be identical with the offer, as well as unconditional," asserted the court holding this to be an enforceable contract, "and that if the offer is to do a definite thing and another accepts conditionally and introduces a new term into the acceptance, his answer is an expression of willingness to treat or it is a counter-proposal and in neither case is there a contract."

"If it be meant by 'identical' that the language of the acceptance be absolutely identical, we cannot agree with the seller. Any form of expression showing clearly an intention to accept on the terms proposed,—i.e., consent to the same subject matter in the same sense would be sufficient, if not coupled with some new condition or any term implying a new condition."

No Breach of Contract

In a similar case before the Montana Supreme Court, the name of a bank contained in the offer, through which the sale would be transacted, was changed by the purchaser in an otherwise unqualified acceptance. The court in holding that the offer and the acceptance, although qualified by this change of the name of the bank, were a completed contract, said:

"Property rights are sacred and should be well guarded by the law, but when a man has deliberately made a fair contract of sale, he ought not to be permitted to avoid it on some flimsy pretext in order to avail himself of a better bargain. Time and place of payment, when not mentioned in the accepted offer, are fixed by law and are matters of performance, carrying out of the contract—a thing wholly separate from the making of the agreement."

"If contemporaneously with or subsequent to the making of a contract either party suggests, requests or proposes a time, place or mode of performance different from that agreed upon, that does not of itself

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REFERENCES

- Iselin v. United States, 271 U.S. 136
- Tucker Duck & Rubber Co. v. Byran, 177 S.W.2d 759, Arkansas
- Minneapolis & St. Louis Ry. Co. v. Columbus Rolling Mill, 119 U.S. 149
- Valashinas v. Koniunto, 125 N.Y.S. 2d 554, New York
- Ennis Brown & Co. v. Hurst, 82 Pac. 1056, California
- Long v. Needham, 96 Pac. 731, Montana
- Turner v. McCormick, 49 S.E. 28, West Virginia

formance to be rendered by each are reasonably certain," said the court in its decision holding that here was a valid, enforceable agreement.

"But if the acceptance of an offer is initially unconditional, the fact that it is accompanied with a direction or a request looking to the carrying out of its provisions, but which does not limit or restrict the contract, does not render it ineffectual or give it the character of a counteroffer."

\$50,000 worth of clerical work per year, spent in repetitive writing of identical information, has been turned to more productive use by adopting a coordinated forms system based on the one-writing system with duplicating equipment.

Don't Spend Your Time and Money Copying Data

*How Republic broke the bottle-neck
of forms and clerical work loads in
purchasing-receiving procedure*

By Ray A. Creede

Procedures and Office Service Manager
Republic Aviation Corporation
Farmingdale, N.Y.



The rapid duplication method reproduces purchase order copies in any quantity required, for distribution on the same day orders are issued. No orders are held over.

SOME YEARS AGO we realized the need of re-vitalizing the paperwork involved in the control and guidance of the many operations required in the manufacture of the Republic F-84 Thunderjet planes. Throughout our plant, some routines and procedures based on multiple copy carbon forms were beginning to bog down.

All office and primarily all control procedures are handled by the procedures department, which reports to the controller. After thorough study, we decided to adopt as far as possible the principle of one-writing and duplicator reproduction. In a limited space, we cannot discuss all the ways in which that principle has been applied. We can, however, give examples that indicate what has been accomplished in

the way of paper-work simplification.

The benefits that we have derived in our purchase-receiving procedure have been particularly outstanding. We issue about 1500 new orders and change orders each week. The number of copies per order runs as high as 15; the average is 8. Every purchase order must be duplicated and copies distributed the same day it is issued. There is no such thing as letting this go over until the next day.

Receipts of individual shipments per purchase order sometimes number from 150 to 200. Formerly a complete rewriting of purchase order information was required in making out reports of these partial receipts. Through our one-writing system, we have obtained the speed

and facility needed to get our purchase orders out on time and have largely eliminated the great volume of rewriting formerly required in preparing our receiving reports.

Save 22 People in Receiving

From our Ditto master we run the full number of purchase order copies required, without rewriting. In addition we can duplicate extra copies for special purposes at any time by simply running them from the master. The master is filed in the receiving department by vendor's name for quick reference. It thus becomes the control job ticket for all receipts of materials.

As materials are received from the supplier, a variable masterslip is written with pencil to record the quantity received and show the balance due. This variable master is combined with the original purchase order master and the receiving report copies are duplicated. There is no rewriting of the purchase order information. For each successive receipt, a new variable master is written and combined with the original master which is used repeatedly, until all material on the order has been received.

This elimination of the rewriting of purchase order information on receiving reports has enabled us to save 22 clerks in the receiving department. A conservative estimate would be a saving of \$50,000 annually on the volume of 3,000 receipts per week.

Formerly, quantities received were posted to records at four different points—in the receiving department, in the planning department, in the accounting department,

and in the purchasing department. Today, the last receiving report issued gives a cumulative record of receipts and shows balance undelivered. There is no need for reference to earlier reports. As copies are filed, earlier copies are thrown away.

Except for accounts payable, postings have been discontinued, thus releasing the clerks who formerly did this work for more important duties. Adoption of the 'throw away' principle which keeps the files clear of all except the last receiving report copies has enabled us to drastically reduce filing requirements and make filing equipment available for other purposes.

Speed Reimbursements

The Ditto one-writing method speeds discounts and reimbursements on government work. Inaccuracies formerly necessitated 30% rewriting to correct the reports before reimbursement could be obtained. A \$100,000 payment might be held up for a \$1 error. Notices of adjustments have been reduced to an average of less than 1%.

The saving through reducing the rewriting required on purchase order changes is difficult to figure. It involves 12 departments and the time and efficiency of hundreds of people. We have adopted the principle that when a change appears on a single page of a purchase order, a new master for that page shall be made and new copies duplicated. We cancel the old master and use the new one from that point on.

A master is made for each report covering defective material rejected upon inspection. Copies are run off for everyone concerned.

Speedy issuance of engineering

change notices is essential to constant improvement of the Thunderjet. This is facilitated by the fast Ditto duplicating equipment upon which the engineering department runs notices describing engineering changes as well as notices of changes in spare parts orders, contracts, and shipping instructions. The minute there is a change the engineering department survey group notifies planning and material control. Planning sends a stop order to the shop while material control cancels all purchase orders affected.

Additional equipment is used by the manufacturing engineering department to duplicate operation sheets and work orders which are issued to production control centers and others concerned for control of parts manufacture and assembly. We also simplify the illustration of parts and assemblies for subcontractors, service representatives, or shop employees, to facilitate blue print reading. This is done by reproducing simple drawings on our equipment for distribution to all parties interested.

Practically every department is interested in every sales order. As many as 50 to 60 copies may be needed to inform interested departments that we have accepted a new contract. Every sales order is typed on a master and the required copies are duplicated and distributed.

Formerly we produced 9 copies of the shipping order but actually needed 15. Again Ditto one-writing proved to be the answer. A master is made for each shipping order. Copies are run and distributed. Later the master is re-used in the accounting department to run off invoices. Masters are used to dup-

licate packing sheets for spare parts shipments. On many government parts shipments, we are required to furnish lists of parts, sometimes as many as 400, to facilitate replacement in the field.

The service department has its own application of the Ditto method for sending out notices to our service men all over the world. All changes and suggestions about airplane operations in strategic areas are accumulated in the service department, duplicated, and distributed to our world-wide service organization.

Ease Manpower Problem

The simplification of paperwork through one-writing and duplication has played an important part in easing our manpower problem. Like every aircraft manufacturer we have considerable turnover of employees and rapid advancement. There is a constant problem of training new employees. The method has to be simple and the details standardized. With our duplicating equipment it is possible to get these details into the hands of interested employees promptly and effectively.

Because of our success in such varied applications, the one-writing principle has become a 'must' in our paperwork control. In addition to three duplicators in our receiving department and two in our office service department, there are several more machines actively in use throughout the plant. When we consider that the one-writing method simplifies and facilitates practically every phase of our operations, it is evident that our investment has been paid back many times over.

Clerk writes receiving information on a supplemental Ditto master, which is combined with the original purchase order master to which it applies. Information already appearing on the purchase order does not need to be re-written.

Purchase order information and receiving information are reproduced to provide complete receiving reports. Filed copies replace postings, reducing clerical effort in both operations and releasing personnel for more productive duties.





In a compact purchasing department such as this, close teamwork among the buyers is essential. P. A. Marvin Kouf (at desk) confers with his buyers, G. R. Getts and Charles A. Keesling.



This Purchasing Department Concentrates on the Important Items

By Marvin Kouf, Purchasing Agent

General Controls Company
Glendale, California

PURCHASING for General Controls Company currently involves an annual expenditure of about \$7,500,000 in behalf of 38 branch offices throughout the nation and a subsidiary at Skokie, Ill., as well as a headquarters plant and appliance division at Glendale, Cal. Because it is essential to the manufacture of approximately 220,000 catalog items, it necessitates the average issuance of 100 purchase

orders per day to vendors throughout the United States and in many foreign countries.

The efficiency of the operation is indicated by the fact that it is being maintained by a single centralized purchasing department with only seven employees (including the P. A., two buyers, a followup man, and three clerical workers).

General Controls is one of America's largest man-

ufacturers of thermostats, magnetic valves, low and high pressure controls, relays, refrigerant distributors, limit switches, and many related components for both home and industrial use. Because the company now has an extremely self-sufficient production setup, we now have very few dealings with subcontractors. However, we must procure virtually all types of raw materials—including most commercial alloys, precious metals, glass, plastics, wood, and organic coatings—in addition to such things as maintenance supplies, special tooling, casting, and forgings.



High quality standards are important in purchased materials and in finished product. Here an inspector uses precision optical equipment to check on close dimensional tolerances in a small casting.

In order to accomplish this both effectively and with minimum amount of effort, we have in recent years endeavored to limit purchasing to those activities which are most important to the economy of the company as a whole.

For example, while we do process all sizeable orders issued by the company, we assume no responsibility for the procurement of each and every pencil or typewriter ribbon that is used by our branch offices. True, we might buy many of these items for less money than is spent by our branch managers (who are authorized to make minor purchases with petty cash funds), but the extra cost of our work would greatly exceed any savings we could reasonably expect if we did so.

Virtually all of the requisitions we receive originate in the engineering and production control departments. Since each must be carefully checked and approved by management or by a responsible

production official before it reaches the purchasing department, we rarely find any reason to question either the judgment or the motives of our requisitioners as to exactly what is needed. It's our job to satisfy those needs—on time, and in strict accordance with quality standards.

Requisitions pertaining to tooling, forgings, and castings are referred directly to the purchasing agent. One buyer is responsible for the procurement of purchased parts and raw materials, while the other buyer purchases small tools, printing, maintenance supplies, and experimental items. However, if too many requisitions of any given type come in over a short period of time, the purchasing agent and buyers share one another's work load so as to avoid unnecessary delays.

Where a requisitioned item is needed in a hurry, and where no sizeable amount of cash is to be expended, we may place an order with the first reputable vendor who can promise a prompt delivery. But, as a general rule, we obtain at least four competitive bids before issuing a purchase order.

To conserve the time of clerical personnel, we have requests for quotations prepared on special "one-typing" forms, with cut carbons so that, when the names of all vendors are typed on the original, only one vendor's name will appear on each copy.

All price quotations are numbered and accounted for by General Control's cost department in order to avoid questions regarding the legality of our purchases where government contracts are concerned. No copies of vendors' quotes are filed in the purchasing department, because that would be an unnecessary duplication of effort.

Once they are typed, all purchase orders must be approved and signed by the purchasing agent before they are sent to our vendors. The original and copies of each order are for the vendor and his acknowledgment, production control or engineering (depending on which department originated the requisition for the order), our follow-up man, the accounting department, and the receiving department.

Where a change must be made in an order that has already been sent to a vendor, we make use of a purchase order change form which is the same as a purchase order form except for its heading.

Due to the demands that are made on our time, we make it a practice to interview salesmen only three days a week—Monday Wednesday, and Friday. However, we are always anxious to develop new sources of supply (despite the fact that about 90% of our current orders are going to vendors who have served us in the past) and we try to treat salesmen as considerately as we hope General Controls' representatives are treated when they call on prospective customers.

We never find it necessary to select vendors on a reciprocal basis because virtually all of General Controls' more important customers are wholesalers, retailers, or product manufacturers who are in no position to serve as our vendors.

In dealing with vendors who are known to be capable of meeting the high quality standards that we must maintain, price is the determining factor that we consider in placing orders. Where there is any reasonable doubt regarding the ability of a low bidder to make on-schedule deliveries of quality

In large volume production of a wide variety of parts, purchasing finds its greatest opportunity in concentration on raw materials and on parts that are required in quantity, where the biggest dollar expenditures are involved.



GENERAL CONTROLS CO.
REQUISITION

☐ FOR PURCHASE
☐ FOR WORK ORDER
☐ OTHER _____

Date Material Required or Work to be Finished _____

Date _____
Requisitioned by _____
Approved _____
Approved _____
Account No. _____

For Resale ☐ Not for Resale ☐

QUANTITY	CATALOG OR PART NO.	DESCRIPTION OF MATERIAL OR WORK REQUESTED	UNIT PRICE OR ESTIMATED TIME (Hrs.)	VENDOR OR WORK ASSIGNED TO	PURCHASE OR WORK ORDER NO.

Nº 89895

Date Ordered _____

Terms _____

Date Rec. _____

Our Plant _____

Date From _____

FOB _____

Via _____

Conf. _____

Procurement is regarded in its broadest sense at General Controls Company. The same requisition form is used for items to be procured by purchase order or by work order.

All purchase orders are recorded on individual 3 x 5 index cards, serially numbered. Scheduling and follow-up of orders is a vital part of the purchasing system.

PURCHASE ORDER	QUANTITY	PART NO.
PART DESCRIPTION		MATERIAL
VENDOR	COST	UNIT
REMARKS		DELIVER TO
		DATE ORDERED //
		TERMS
		DATE REQUIRED //
		DATE PROMISED //
		F.O.B.
		CONF.
		RESALE
		VIA

GENERAL CONTROLS CO.

Nº 2503

FORM 601, 2-21-54 54-10M PB

APPROVED _____

PURCHASED PART ONLY

products, we are willing to pay a modest premium in order to be sure of getting what we want promptly.

Aside from buying, the only responsibility now being shouldered by our purchasing department involves the profitable disposal of scrap. This is a logical responsibility in our particular circumstance because, thanks to a well-coordinated production setup, General Controls has never found it necessary to organize a specialized salvage group.

Scraps of metals, plastics, rubber, and other ma-

terials are segregated in appropriate containers as they are accumulated by production workers. Then, after the loaded containers are conveyed to a salvage area, a maintenance worker disposes of paper and other materials of no value and informs the purchasing agent at regular intervals regarding the quantities and types of scrap that remain.

We, in turn, obtain competitive bids whenever we find the company has acquired enough scrap of any given type to arouse the interest of dealers in scrap materials.

The Pulse of Business

DECEMBER, 1955

WHAT'S THE ECONOMIC OUTLOOK FOR 1956?

PURCHASING'S **Summary of** **economic** **conditions**

Business should be a little better than it has been this year. There's only one "if". That's assuming that the current level of high confidence will continue to prevail. Since it's a psychic not a scientific phenomenon, one can only guess what it will be in the future.

Unexpected election returns, or dramatic changes in the international situation, can turn confidence into fear for the future almost overnight. People just aren't willing to pledge future income for cars, houses, and other consumer durables on the cuff if they're fearful of the future. Business won't risk its money for facilities it might not need.

There's no premium on confidence today. If it could be measured it would probably be at a record level along with the stock market, gross national product, personal incomes, mortgage debt, employment, and many prices. This feeling will definitely spill over into 1956 almost regardless of what happens.

Other factors will give further impetus to prosperity. Spending for construction will hit \$44 billion - up 5% from 1955 - the Department of Commerce estimates. There's no doubt '56 will be a big year for business expansion - various corporations announce plans almost daily. Auto-makers are still running at a fantastic clip and apparently haven't yet satiated consumers' appetites for their shiny new models. Record construction of new homes in suburbia means a strong secondary demand for consumer durables for for several years - even if demand for housing itself tapers off. Heavy state and municipal borrowing for roads and countless other projects "primes the pump" with pay-rolls that ultimately wind up as additions to the demand for consumer goods.

A voracious demand for goods plus practically full employment means upward pressure on prices. And, the fact is, there's inflation in the air. 75% of the respondents to a recent survey conducted by "Mill & Factory" magazine thought that prices of manufactured goods would be higher in 1956 than they were in 1955.

PLEASE TURN PAGE

THE PULSE OF BUSINESS

- continued from page 103 -

The BLS index of wholesale prices for metal products is up nearly 10% in the last year. Higher prices for raw materials will likely push this index even higher. Steel is in very short supply and another price increase seems almost inevitable. Copper is selling at prices 40% higher than they were a year ago - and there's a good chance it will go up again. Labor demands, which are always both stronger and more effective in periods of prosperity, will likely cause price hikes in a number of other commodities.

But, by mid-'56 at least, there will be counter forces working toward lower prices. One of them is a likely change in inventory policy. In the past year, manufacturers have increased stocks by about \$2 billion. When this is added to the greater purchases necessary to sustain increased sales volume, the result has been a strong demand pressure which has helped push up prices of many commodities.

Inventory accumulation will probably continue into 1956. But a turning point isn't too far away. If stocks stop growing, purchases will be limited to current sales needs. In many of the more sensitive commodities like copper, secondary aluminum, and crude rubber, lower prices could result.

Another counter-inflationary force is current government economic policy. The treasury is heading for a balanced budget. This is deflationary since it, in effect, results in money being taken out of circulation. Also, the Federal Reserve Board has recently been deliberately following a "hard money" policy. Borrowers, as a result, are having a tougher time getting loans and are paying higher interest rates when they do get them. However, this may well be a temporary measure. If any signs of a downturn appear, the government can easily shift to an "easy money" policy and press for tax cuts to unbalance the budget. In an election year, Congress will probably follow the latter course whether the economy needs it or not.

What does all this add up to? It means that:

1. There will be strong pressure for higher prices early in the year.
2. By mid-year, the price trend should become more spotty. Some commodities should get cheaper. Others, that are still in demand, will continue to show price strength.
3. Though a few industries may find the going rough, 1956 will likely be the most prosperous year in our economic history.
4. Employment, earnings, and profits should set new records.

Sales, Inventories and New Orders

Value of Manufacturers' Sales

**Seasonally Adjusted
(Millions of Dollars)**

All manufacturing industries	.....
Durable-goods industries	.....
Primary metal	.....
Fabricated metal	.....
Machinery	.....
Transportation equipment	.....
Lumber and furniture	.....
Stone, clay and glass	.....
Other durable goods	.....
Nondurable-goods industries	.....
Food and beverage	.....
Tobacco	.....
Textile	.....
Paper	.....
Chemical	.....
Petroleum and coal	.....
Rubber	.....
Other nondurable goods	.....

Book Value of Manufacturers' Inventories

**Seasonally Adjusted
(Millions of Dollars)**

All manufacturing industries	.....
Durable-goods industries	.....
Primary metal	.....
Fabricated metal	.....
Machinery	.....
Transportation equipment	.....
Lumber and furniture	.....
Stone, clay and glass	.....
Other durable goods	.....
Nondurable-goods industries	.....
Food and beverage	.....
Tobacco	.....
Textile	.....
Paper	.....
Chemical	.....
Petroleum and coal	.....
Rubber	.....
Other nondurable goods	.....

Manufacturers' New Orders (Seasonally Adjusted)

All Manufacturing Industries

Durable goods industries

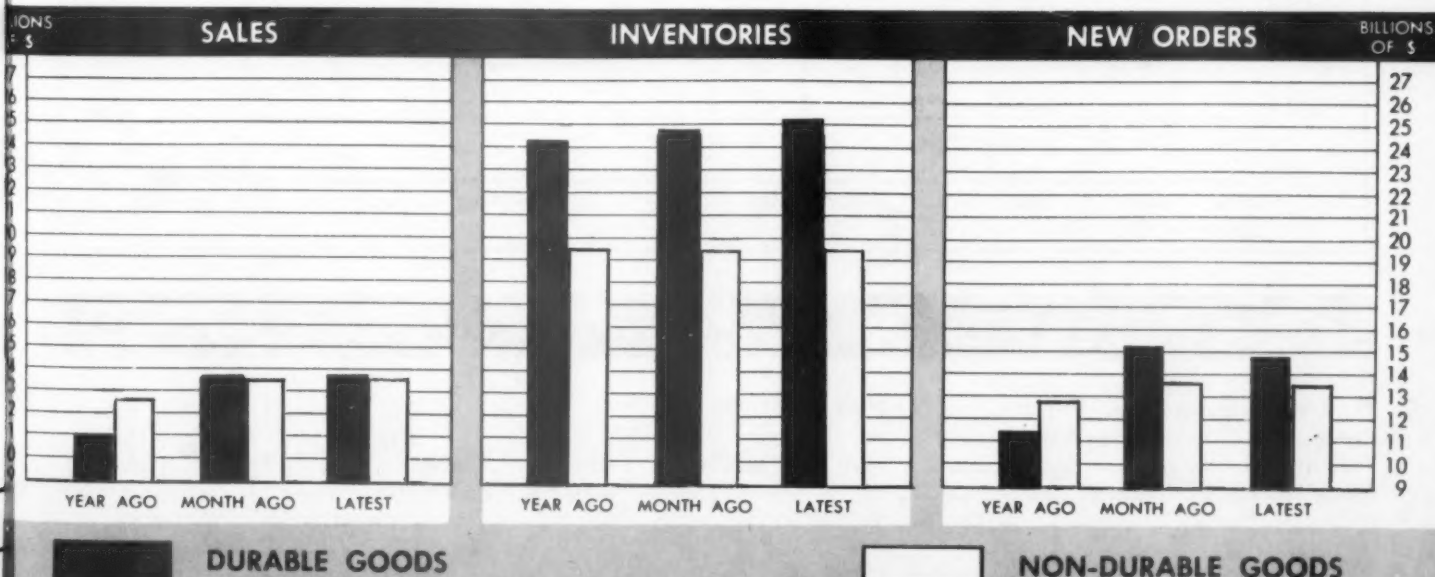
Nondurable goods industries

1954		1955			
Sept.	May	June	July	Aug. (r)	Sept. (p)
23,008	26,651	27,111	26,731	27,229	27,396
10,832	13,322	13,527	13,503	13,745	13,846
1,662	2,213	2,315	2,138	2,285	2,425
1,154	1,325	1,383	1,407	1,510	1,481
3,081	3,410	3,547	3,475	3,484	3,453
2,317	3,609	3,329	3,615	3,413	3,509
1,049	1,125	1,208	1,198	1,280	1,263
598	652	688	657	682	648
971	988	1,057	1,013	1,091	1,067
12,176	13,329	13,584	13,228	13,484	13,550
3,979	4,189	4,329	4,223	4,291	4,277
311	336	318	316	330	323
1,063	1,172	1,148	1,133	1,109	1,117
729	841	844	834	874	873
1,657	1,961	1,985	1,844	2,001	2,021
2,101	2,346	2,386	2,299	2,382	2,382
346	465	465	471	456	n.a.
1,990	2,019	2,109	2,108	2,041	2,101
42,908	43,549	43,779	43,938	44,315	44,646
23,709	24,304	24,457	24,563	24,768	25,127
3,068	3,236	3,188	3,197	3,259	3,289
2,585	2,501	2,587	2,604	2,620	2,710
8,057	7,919	7,905	8,010	8,069	8,164
5,419	5,876	5,961	5,905	5,990	6,065
1,566	1,735	1,747	1,755	1,742	1,788
853	897	897	906	914	921
2,161	2,140	2,172	2,186	2,174	2,190
19,199	19,245	19,322	19,373	19,547	19,519
4,409	4,391	4,344	4,358	4,374	4,410
1,834	1,842	1,857	1,832	1,829	1,773
2,352	2,396	2,426	2,398	2,434	2,419
983	1,038	1,034	1,063	1,078	1,025
2,948	2,995	3,024	3,039	3,112	3,187
2,739	2,670	2,713	2,753	2,755	2,776
799	810	850	853	863	n.a.
3,135	3,103	3,074	3,079	3,102	3,066
23,286	27,720	27,795	27,044	28,718	28,288
11,153	14,331	14,033	13,571	15,145	14,957
12,133	13,389	13,762	13,473	13,573	13,331

p—preliminary

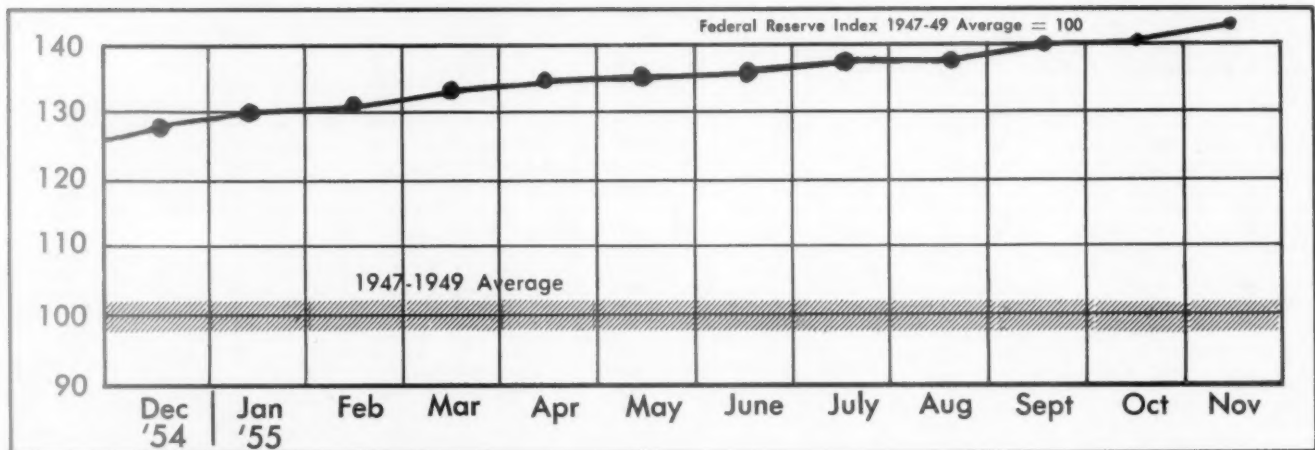
r—revised

n.a.—not available



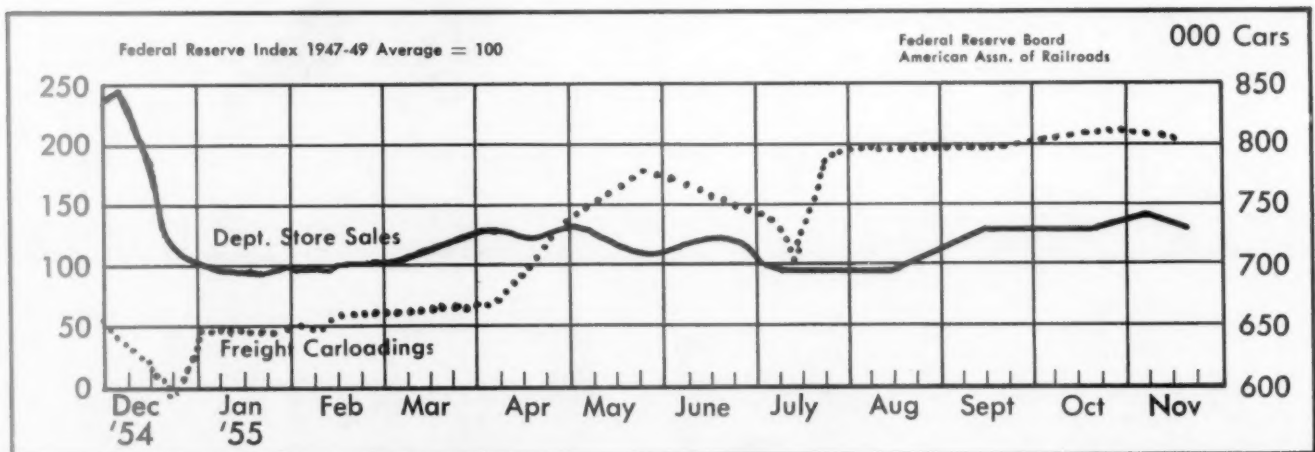
THE PULSE OF BUSINESS

PRODUCTION



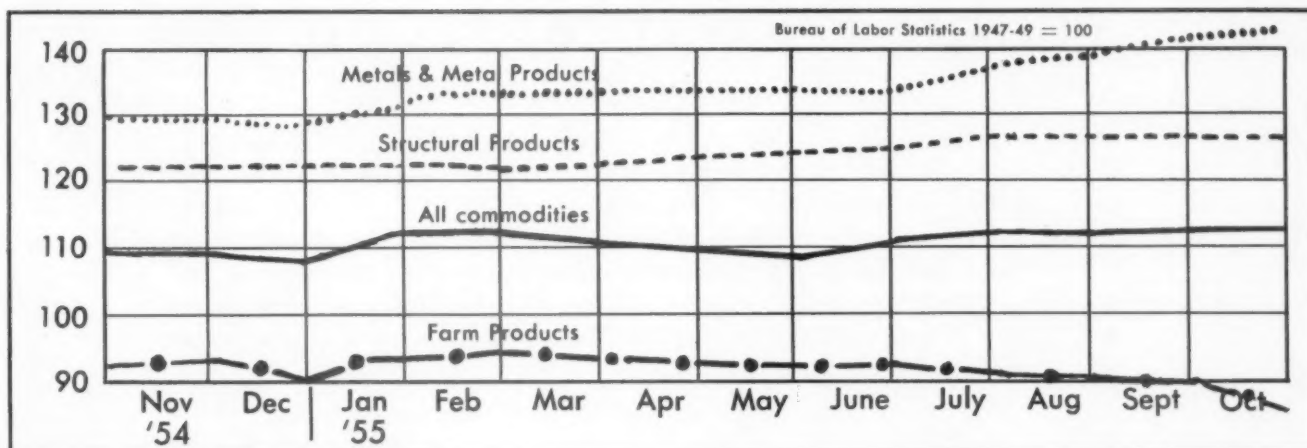
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Industrial Production Index	1947-49=100	142	142	126	0	+12.7
Steel Production (Weekly)	000 net tons	2,372	2,330	1,874	+ 1.8	+26.6
Electric Power Production (Weekly)	mil KWH	10,853	10,627	9,357	+ 2.1	+16.0
Bituminous Coal Production (Weekly)	000 net tons	10,100	9,575	8,597	+ 5.5	+17.5
Auto, Truck & Bus Output (Weekly)	units	200,907	100,951	113,053	+99.0	+77.7
Petroleum Output (Daily Average)	000 bbls.	6,661	6,660	6,092	+ 0.1	+ 9.3

TRADE



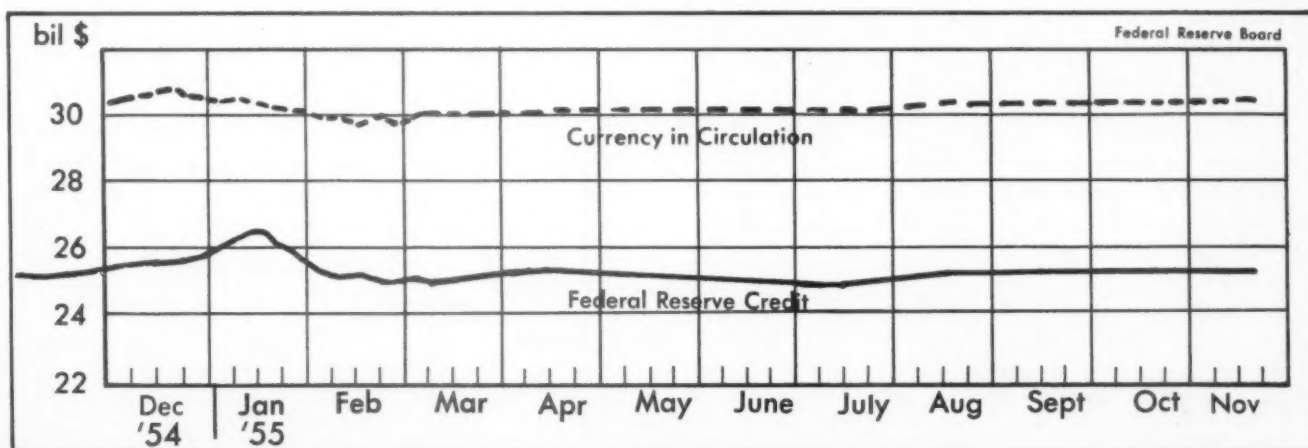
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Dept. Stores Sales Index (Fed. Res.)	1947-49=100	128	126	127	+ 1.6	+ 0.8
Commercial Failures (Dun & Bradstreet)	no.	237	186	204	+27.4	+16.2
Freight Carloadings	cars	808,709	820,312	696,026	- 1.4	+16.2
Miscellaneous Carloadings	cars	404,252	400,058	348,702	+ 1.0	+15.9

PRICES



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN	
					MONTH	YEAR
All Commodities (BLS)	1947-49=100	111.5	111.7	109.7	- 0.2	+ 1.6
Farm Products	1947-49=100	86.7	89.3	93.1	- 2.9	- 6.9
Metals & Metal Products	1947-49=100	142.3	141.8	129.7	+ 0.4	+ 9.7
Structural Products	1947-49=100	126.8	126.4	121.9	+ 0.3	+ 4.0
Steel Billets (Pittsburgh)	net ton	\$68.50	\$68.50	\$64.00	0	+ 7.0
Steel Scrap, heavy melting, Pitts	net ton	45.00	43.00	33.00	+ 4.6	+36.4
Copper, electrolytic	lb.	.43	.43	.30	+ 0	+43.3
Rubber (rib-smoked sheets)	lb.	.44 $\frac{1}{2}$	.44 $\frac{1}{4}$	.28 $\frac{1}{2}$	+ 0.1	+56.1

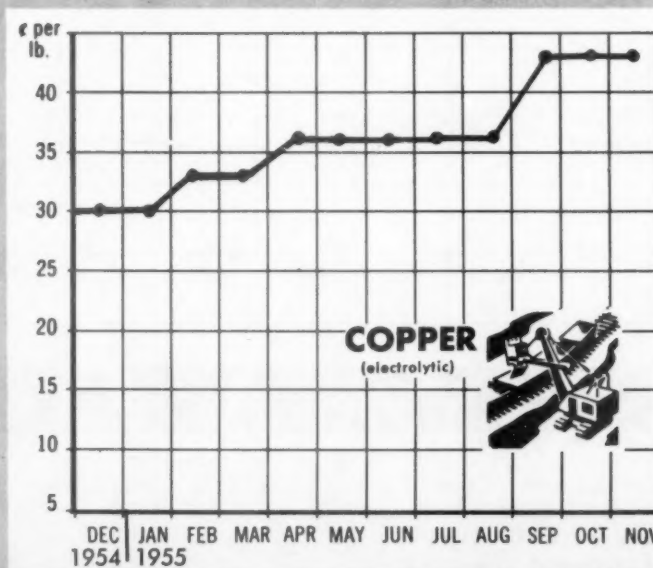
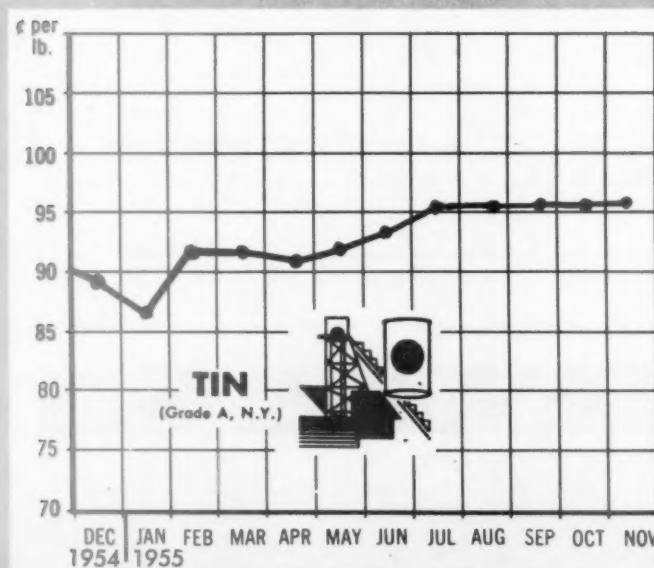
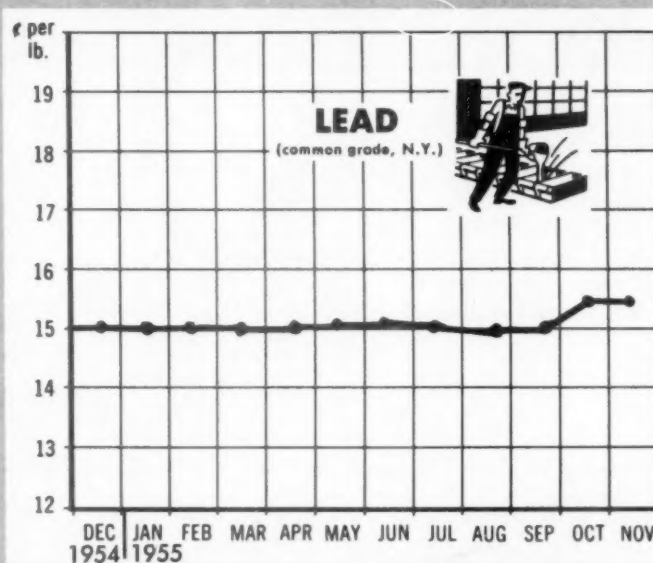
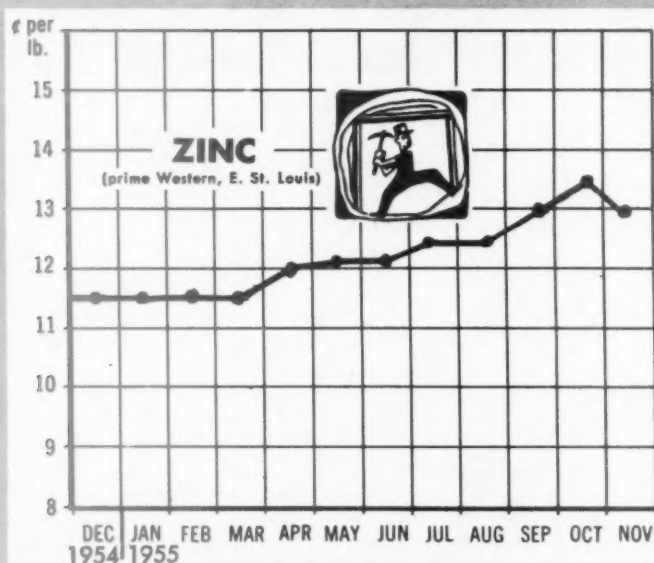
FINANCE

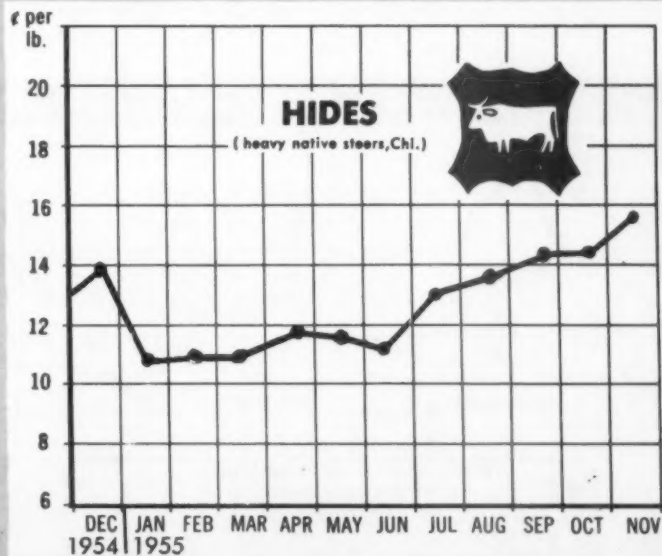
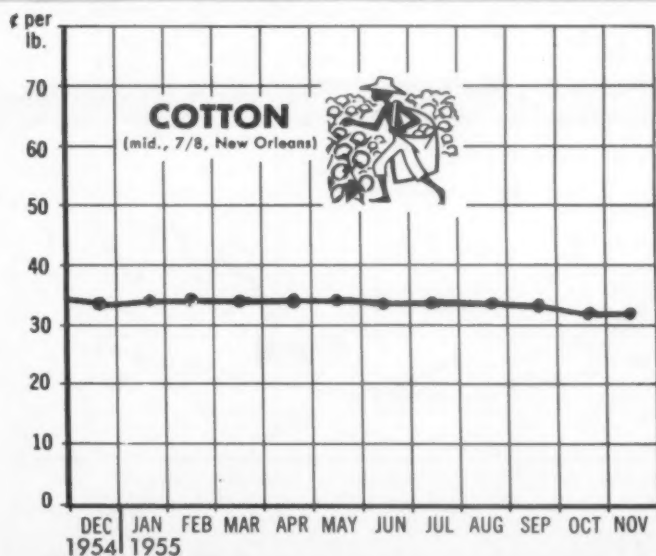
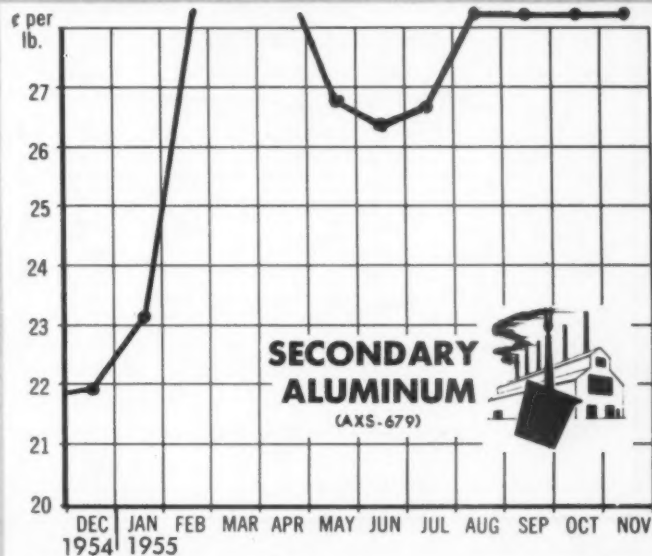
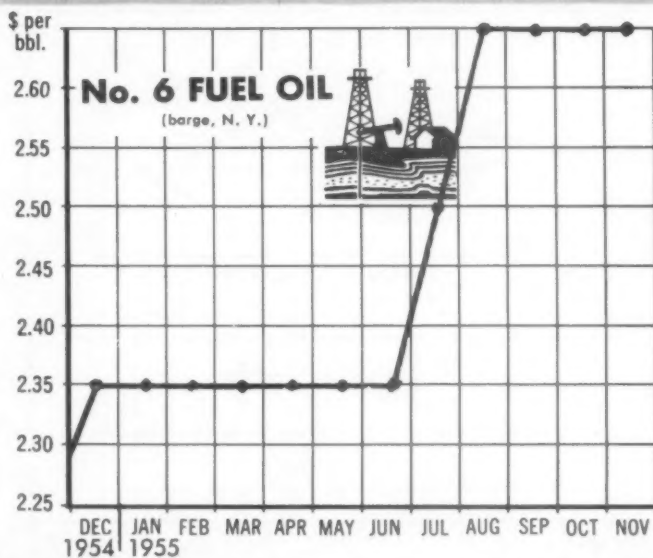
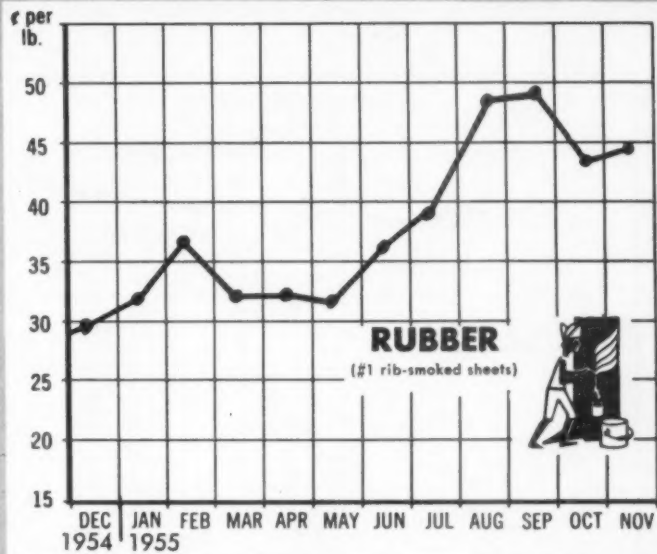


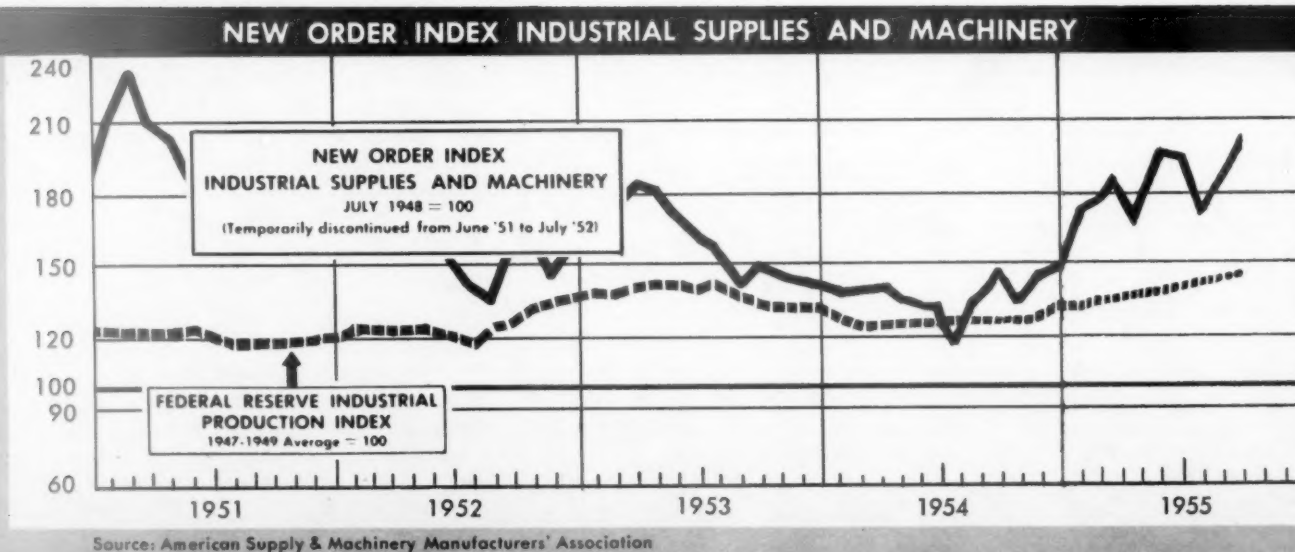
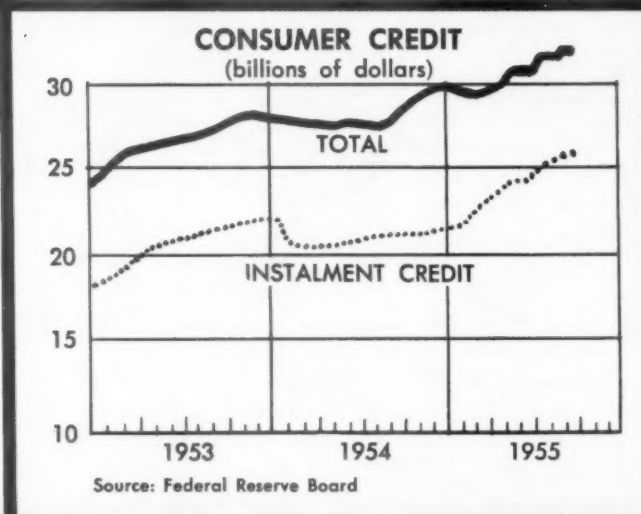
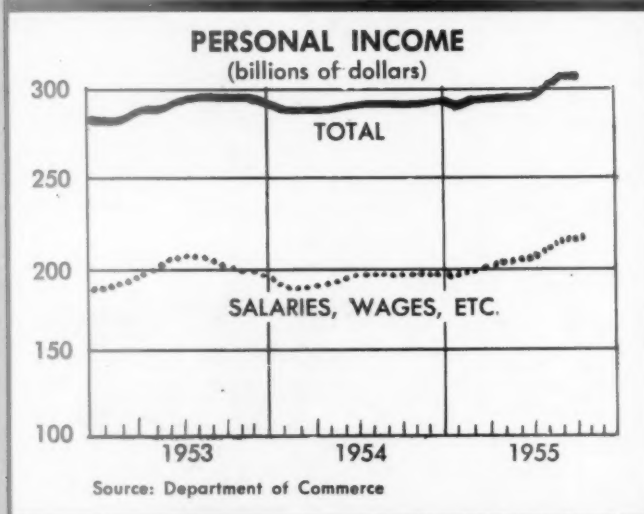
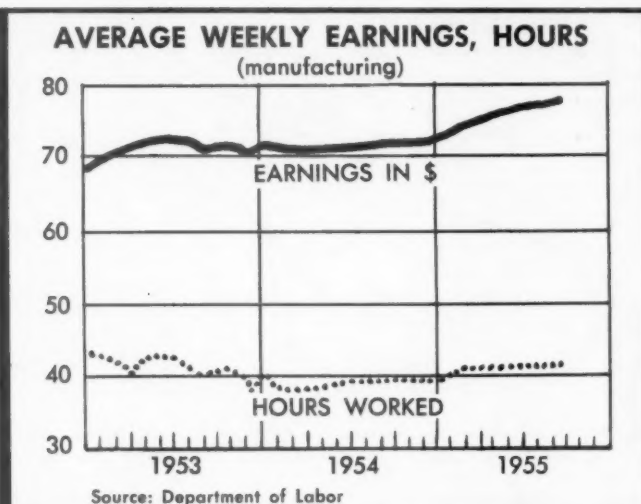
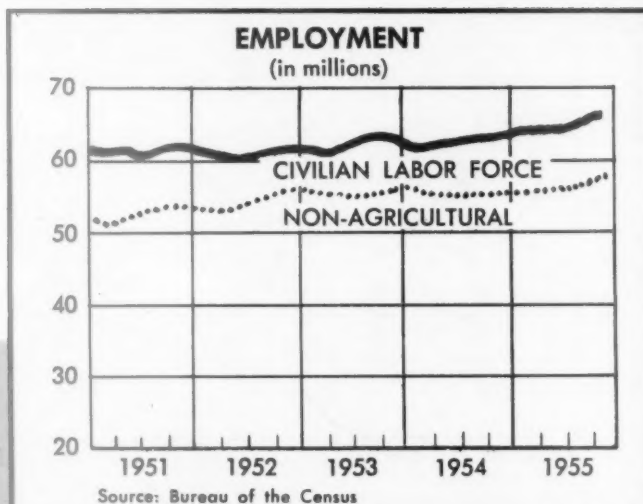
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN	
					MONTH	YEAR
Stock Prices (Standard & Poor's)	1926=100	343.3	339.1	263.5	+ 1.2	+30.1
Bank Clearings (New York)	mil \$	8,953	11,381	10,639	-21.3	-15.8
Federal Reserve Credit	mil \$	25,693	25,525	25,701	+ 1.7	+ 1.0
Currency in Circulation	mil \$	30,657	30,428	30,206	+ 0.8	+ 1.5

Further Price Hikes Probable

Several PAs close to critical metal markets are looking for *higher prices* in many key commodities in the next few months. One reason is heavy demand for most finished goods. Another important one: shortages—in copper, for example—have caused stocks to drop below levels that would be justified by current sales. Companies on a *LIFO* inventory basis can keep taxes down by buying in excess of requirements in the next month. A few PAs are playing the game in reverse. They plan to work stocks down in the next few months and let others buy. They hope to replenish stocks at lower prices before mid-year.







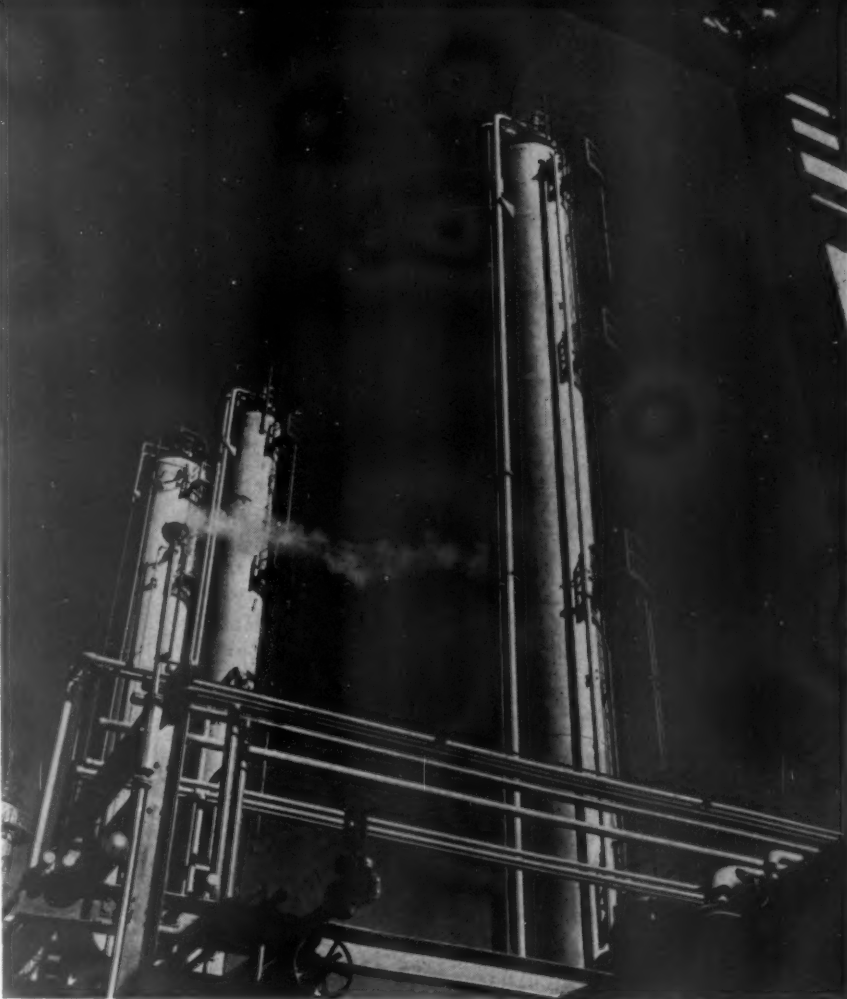
Fractional distillation towers break up crude oil into many products by vaporizing and segregating the more volatile constituents. Fuel oil is a residual product of this process.

NOTHING that the purchasing agent buys is more complex in composition than petroleum products. This is true despite the fact that crude oil (the original source from which they are all derived) is mostly made up of only two elements—hydrogen and carbon—forming what are known as hydrocarbons. The balance, rarely over 1%, is made up of sulphur, nitrogen, and traces of metal compounds.

What makes the composition of crude oil and the fuels derived from it so complex is that the hydrogen and carbon can be combined in hundreds—possibly thousands—of different ways. The manner in which these hydrocarbons are combined in molecular structure, and the proportion of each group in any petroleum product, impart an infinite variety of different chemical and physical properties to various crude oils and the products derived from them, whether naphtha, gasoline, kerosene, gas oils, heavy fuel oils, petroleum coke, or what not. Also, while the small balance of non-hydrocarbons in petroleum products is small in volume, some of them (like vanadium in Venezuelan oil) may exert an effect on functional uses far out of proportion to their minute presence.

The equipment in which most of the petroleum fuels are used is so exacting that the producers of such fuels have standardized their properties so that they all give virtually a uniform performance. This applies, for example, to gasolines and a majority of diesel engine fuels, especially for firing high speed engines. Therefore, in general, such fuels present only the price and delivery factors as problems in purchasing.

But this is not the case with industrial fuel oils, especially those



Photographs by courtesy of Shell Oil Company

What the Purchasing Agent Should Know about FUEL OIL

Fuel oils are highly complex and variable products, differing according to the crude petroleum from which they are derived and the methods by which they are produced. Don't rely on grade numbers alone; they provide a basic classification, but specific properties must be considered.

By A. Wyn Williams

used for steam generation in power plants. They can present a wide variety of factors.

Recognizing these variations, the National Bureau of Standards has established broad specifications which provide a general guide to properties of fuel oils. These specifications, however, leave room for a wide variation, even in fuel oils of the same classification. These

variations can be a headache to the fuel oil buyer unless the supplier is able to give assurance that they are not of a type to lower the efficiency of the equipment in which the fuel oil is to be burned (and any accessories) or to damage the specialized products made in certain types of plants.

Fuel oils may be roughly defined as the liquefiable residues remain-

ing after the more volatile constituents of the crude oil have been removed. They are pretty low down on the petroleum totem pole. They are what is left after heat has been applied to crude oil to distill off (1) light gases; (2) gasoline; (3) naphtha; (4) kerosene and (5) gas oils. They may also be the heavier elements formed from "cracking" the gas oils (5).

The different combinations of hydrocarbons making up the complex composition of crude oil have different boiling points; thus, when heat is applied, some can be vaporized off before the others. Gasoline, for example, will all have been vaporized at about 350° F, whereas other groups of hydrocarbons will not start vaporizing until about 400° F. Fuel oils made by this process, called "fractional distillation", are called straight run residuals. It is well to note here that any impurities in the original crude oil will have been compounded by the time only the heavy residuals are left. This is a matter of considerable import.

Fuel oils today are rarely ever the simple residues of fractional distillation. They are usually blends of straight run residuals with cracked residuals. Briefly, "cracking" is the process of breaking up various hydrocarbon compounds under far higher heat than that for distillation, and at high pressures, to form different hydrocarbon combinations. Sometimes a catalyst is used. Cracking heats can be from 1000° F up, and pressures from 1000 to 1500 psi. From this, it can be seen that fuel oils can be very complex products with a wide range of variable properties.

Significance of Grades

NBS Specification CS12-48 establishes certain broad bases for grading fuel oils. It has no reference to their mode of production, their composition or general applicability, except as to type of burner. The specifications, therefore, leave large areas on which supplementary information will often have to be sought from the fuel oil supplier.

For example, the specifications recognize the necessity for low sulphur content in fuel oils used in connection with heat treating, non-ferrous metals, glass and ceramic furnaces, and other special uses. Therefore, a sulphur requirement may be specified as follows:

No. 1 oil 0.05% max.
No. 2 oil 1.00% max.
No. 4 oil no limit

National Bureau of Standards Specification CS 12-48—Fuel Oils

(Effective September 25, 1948, replacing CS12-40)

Grade of Fuel Oil	Description	Flash Point deg. F min.	Water & Sediment by vol. max.	Saybolt Viscosity				Gravity deg. API min.
				Universal @ 100° F		Furol @ 122° F		
				max.	min.	max.	min.	
No. 1	A distillate oil for pot-type burners (i.e., burners requiring a volatile fuel).	100 or legal	trace	—	—	—	—	35
No. 2	A distillate oil for domestic heatings in burners not requiring No. 1 oil (i.e., burners requiring a moderately volatile oil).	100 or legal	0.10	40	—	—	—	26
No. 3	This specification in CS12-40 now obsolete, and part of No. 2 above.							
No. 4	An oil for burners not equipped with preheating facilities (i.e., burners requiring low viscosity oil).	130 or legal	0.50	125	45	—	—	
No. 5	A residual type oil for burners equipped with preheating facilities (i.e., burners requiring a medium viscosity oil).	130 or legal	1.00	—	150	40	—	
No. 6	An oil for use in burners equipped with preheaters, permitting a high viscosity fuel.	150	2.00	—	—	300	45	

No. 5 oil no limit

No. 6 oil no limit

The reason that no limits are set for Nos. 4, 5, and 6 is that different operations in which these oils are used can handle different amounts of sulphur in the oils. For example, in heat treating metals, oils with less than 0.25% sulphur must be used because sulphur gases are absorbed by the metals. In open hearth operations, oils up to 1% sulphur content could be used, while up to 2% sulphur would ordinarily be acceptable in oils for ordinary boiler fuel. It is up to the buyer of Nos. 4, 5, and 6 oils to specify, according to functional use, what the sulphur content is to be, and the supplier must conform in his delivery.

Another indication that the grade number of a fuel oil is not to be taken as an infallible guide to all its properties is found in the footnote to the NBS Specifications: "It is the intent of these classifications that failure to meet any requirement of a given grade does not automatically place an oil in the next lower grade." This is reason-

able because there is a wide variation even in oils of the same classification, and an evaluation of these variations is essential to a good procurement job. Incidentally, the NBS numbered grading is tending to drive out the old alphabetical nomenclature of the heavy oils as Bunker A, B, and C. Bunker C corresponds to No. 6, while Bunker A and B are both included in No. 5.

Important Properties

What are some of the most important properties of fuel oils to be considered in buying?

Flash Point is the temperature at which sufficient vapor is given off to form a momentary flash when flame is brought near the surface of the oil. The flash point is regarded as the most important index of fire hazard. It varies widely for different petroleum products. The more volatile gasolines have flash points below 0° F; kerosene is at about 100° F; fuel oils range from 150° to 300° F. In the absence of local ordinances, ASTM states that the flash points for Nos. 1 and 2



Oil cracking units such as this new plant at Houston, Texas, using the new micro-spheroid catalyst, change the hydrocarbon combinations in crude oil. Fuel oil is one of the resulting products.

oils should be 100° F, and 150° F for Nos. 4, 5, and 6.

Specific Gravity of fuel oils is important because they are sold on a volumetric basis. Generally, the lower value oils on the API scale have greater heating value than those higher up. Most cracked oils will have a lower gravity than straight run oils. The importance that gravity plays in fuel oil purchase can be gathered from the following values for a shipment of straight run No. 5 oil and cracked No. 5 oil:

Grade	API Gravity	Btu per gal
No. 5 straight run	22	146,800
No. 5 cracked oil	13	152,600

The oil with the lower API gravity value has 5,800 more Btu's per gallon. This, in a 10,000 gallon tank car shipment, would add up to 58 million more Btu's, or the heating value of 327 additional gallons.

Heating Value is a measure of the useful performance of a fuel. It is measured in British thermal units, and can vary from around 150,000 Btu per gallon for oils with an API value of 10, to as low

as 130,000 Btu per gallon for oils with an API of 49.

One fact to remember about heating value is that the API value is not an infallible guide. Oils of the same gravity may have different Btu's if the percentage of hydrogen varies widely. Those with the higher hydrogen composition would be higher in Btu value, as hydrogen contains 62,000 Btu/lb while carbon contains only 14,600 Btu/lb. Also, poorly refined oil containing excessive amounts of water, sediment and ash would not give the right heating value for its declared API.

Viscosity is the measure of resistance to flow. Lighter oils are measured with the Saybolt Universal viscometer, while the heavier fuel oils are measured with the Saybolt Furol unit. Viscosity is defined as the time it takes 60 cc. of a liquid to run through a standard orifice at a certain temperature. The Furol readings are roughly

1/10 those of the Universal readings. Viscosity of fuel oil decreases as the temperature rises, and becomes constant at about 250. Viscosity is important in determining the type of burner for which the oil is suitable and the types of pumps and other facilities needed to handle it.

Sulphur in fuel oils is objectionable because the products of combustion are acids which cause corrosion in economizers, air heaters, and gas ducts. It may also cause corrosion in steel stacks. Where costly combustion equipment is involved, it is the proper policy to pay a premium for a fuel having a lower percentage of sulphur. Fuel oils contain all the sulphur impurities of the original crude oil in a compounded form. Therefore, the amount of sulphur in any fuel oil will largely depend on the original source of the crude.

(Please turn to page 310)

Foreign Buyers

WANT TO KNOW...

How can I buy American-made goods?

What kind of credit terms can I get?

Why are U. S. tariffs so high?

How can I get a good American agent?

By Lucy Eddinger

WHAT are some of the problems of foreign manufacturers who want to sell the U. S. purchaser? What does the world market want to buy from us?

American businessmen — under the auspices of the U. S. Department of Commerce—have been attending International Trade Fairs in such diverse centers as Djakarta in Indonesia and Frankfort, Germany. Their assignment has been to talk to buyers and sellers around the world and speak the man-to-man language which diplomats frequently forget.

Here are some of the typical questions asked American representatives at trade fairs in Europe and Asia.

"How can I buy American goods?" turned out to be the most frequent query in an analysis made of questions asked at the Spring Trade Fairs. Next in order of frequency were questions on how to sell goods in U. S. markets, marketing and distribution practices of this country, techniques and methods of attracting U. S. investments, and questions on customs procedures and import duties.

Another question asked by European buyers was on U. S. credit terms. European competitors usually beat American sellers when it comes to credit terms. Greek reaction to U. S. goods, was, "We'll buy if you give us better credit terms."



WANT TO BUY

At Djakarta: Indonesians are fascinated by American machinery shown at the Trade Fair.

The universal complaint of foreign sellers is that U. S. tariffs are too high. This is often echoed without taking the trouble to check the real facts. Stories on U. S. tariff hikes get front page play in the foreign press. On the other hand, U. S. reductions in tariff get little publicity in European papers.

Competitive Prices

The problem of pricing goods for export frequently stumps the European manufacturer. Take for example the German producer of precision gauges who came to the U. S. representatives at the Hanover Trade Fair and claimed he couldn't make a profit because U. S. tariffs were too high. After an ana-

lysis, a U. S. specialist pointed out that the foreign-made gauge was actually priced so that after the U. S. tariff was paid it still undersold comparable items on the U. S. market.

It was pointed out to the foreign maker that instead of being priced out of the market, he was not allowing enough margin for distribution and promotion, and that even with a substantial allowance for such activity his selling price would still be competitive to the U. S. product.

The foreign seller who wants to break into the U. S. market successfully needs all the ammunition he can get, including up-to-date marketing information. Here's where the U. S. commercial



WANT TO SELL

At Salonika: A Macedonian farmer wants to know how to sell his cheese in the United States.

libraries come into the picture. The libraries, set up at each trade information center, contain information on buying and selling contributed by U. S. business publishers. They include export-import directories from all major areas and cities, vertical purchasing and sales directories, trade papers and periodicals, information on major port cities and port facilities, classified sections of telephone directories of major U. S. cities, trade association publications and studies, and foreign language newspapers published in the U. S.

Many Products Wanted

What kind of U. S. merchandise do foreign buyers want? What do they have to sell on the U. S. market?

A distributor in Barcelona is interested in the price of American-made prefabricated houses.

An importer of draglines and shovels wants to buy American construction machinery and equipment.

A manufacturer of fine crystal in Valencia said his production methods were "antiquated in relation to other countries." He wants to modernize his factory, put in new machinery and perhaps sell an interest in his company to an American company. His problem: licenses are difficult to come by in Spain. U. S. representatives can't do much to solve his immediate problem, but they can report the many complaints on this score and recommend that Government take some action.

An importer from Haarlem, Holland wants to buy American-made plastic furniture. He was given the address of the National Association of Furniture Manufacturers in

Chicago and put in touch with the U. S. consulate in Amsterdam.

A sales agent in Frankfurt for textile products wants to get in touch with U. S. producers of cheap textiles that could compete with Japanese products.

A rubber band manufacturer wants to import the U. S. product and establish business connections with an American firm.

U. S. representatives at the trade fairs heard numerous queries about exporting to this country. A wine producer in Valencia wanted to know how he would go about exporting to the United States. A Frankfurt manufacturer of a novelty "fairy tale wall" wanted to know about export possibilities. A Barcelona manufacturer with a patent on dancing dolls wanted to know the procedures which would allow him to sell the dolls in U. S. department stores.

Some Legal Hurdles

Frequently asked question by Spanish dealers was: How can I get a license to buy American-made automobiles and trucks, and, more important, spare parts. Spare parts are being smuggled into the country because of high duties and restrictions imposed by the Spanish government. The government says spare parts cannot be imported if they can be made locally. Trouble is, the local product does not stand up, according to the dealers. Dealers are forced to either have their own spare parts made on the local market or buy them illegally.

The government imports cars in lots, and many of them reach the black market where they are resold at twice the cost. One truck dealer complained that up until 1936, he had no trouble importing trucks. To that date he had imported about



WANT TO KNOW

At Brussels: Belgian businessmen seek information on buying and selling in the American market.

1500 of them. Since then, he's been able to import only about 45.

Sicilian wine manufacturers believed that U. S. food and drug laws were rigged to keep their goods out of the country. They were surprised to hear that U. S. manufacturers were under the same restrictions and that, in fact, they had an advantage over American makers whose production process is watched every step of the way. The only test the foreign producer has to pass is the one to get the product into the country.

Trade Opportunities

Reaction to American exhibits and information booths at foreign trade fairs has been highly complimentary in the press and in the foreign business community. Russia has also stepped up her participation in international trade fairs, and at the fairs where the two countries are represented there is active competition. Said one U. S. spokesman, "Our decisive advantage over the Russian representatives is that we mean it. We can take orders and actually fill them. The Russians only talk; they can't deliver."

But by far the most significant development of the international trade fairs has been an awakening to the great possibilities of a freer world market. The fairs have made traders in this country more conscious of the world-wide thirst for American-made products. Americans who have gone to the fairs come back with a down-to-earth, personal knowledge of the problems of international trade—the prickly little dilemmas run into by a foreign producer who wants to sell his goods in this country—the hurdles facing U. S. manufacturers who want to sell overseas.

Written Policies with Management's Endorsement Strengthen the Purchasing Department

A simple 7-page mimeographed purchasing manual spells out policies, objectives, prerogatives and responsibilities of the purchasing department at Cleveland Graphite Bronze Company

WRITTEN STATEMENTS of purchasing policies, objectives, and responsibilities can be of tremendous value. They can:

- Apprise other departments of purchasing's prerogatives and its relation to their activities.
- Help promote consistent and fair relations with suppliers.
- Serve as a basic framework for a sound system of purchasing procedure.
- Facilitate uniform action by all purchasing personnel in dealing both with other departments within the company and with suppliers.

Despite their value, the use of written purchasing policies is still pretty much limited to the larger corporations. One reason for this may be lack of appreciation of how useful they can be to a smaller company. Another may be the prevalence of the false idea that a written statement of policy must necessarily be presented in an elaborate and costly printed manual.

One medium-sized firm that has spelled out its purchasing policies, objectives, and responsibilities is the Cleveland Graphite Bronze Company. It does the job in a simple and inexpensive, but authoritative fashion with a 7-page manual. The manual is mimeographed and can be inserted in any loose-leaf notebook binder for ready reference. It serves as a

framework within which the company's time-tested purchasing procedures operate. Since they are relatively simple, and all interested personnel are thoroughly familiar with them, the procedures themselves are not codified in a manual.

The manual does cover thoroughly subjects that are so often the cause of misunderstandings in many companies. It describes the general functions of the purchasing department, the company's purchasing policies, its purchasing objectives, and the relation of purchasing to other departments. Its stated purpose is to serve as a "guide to larger profits and reduced expenses in the purchasing department."

The company has 17 basic purchasing policies, covering every phase of the procurement function. Typical is Policy No. 17, on personal purchases:

"Use of the company's buying power for the benefit of employees. Only in those cases where employees are required to furnish their own tools will the company buy and sell to employees. The above is in conformance with the Fair Trade Practice Act."

With written policies like this example, there can be no misunderstanding as to the company's position. Other topics covered with written policies include vendor re-

lations, standardization, quotations, speculative buying, inventory, reciprocity, and acceptance of gifts.

The manual then lists the 12 basic objectives the department is trying to reach within the framework of its policies. These are typical examples:

"Constantly be on the lookout for new materials at lower costs which may be used to advantage as substitutes for materials already in use."

"Build and maintain a catalog library, making this information available to all other departments in the company."

A strong, centralized purchasing function is vital to the success of any company. Cleveland Graphite Bronze recognizes this and clearly spells out purchasing's prerogatives in the section on relations with other departments. To show that an effective manual need not be elaborate, and because this is the area where misunderstandings are most likely to arise in many companies, the major part of this section is quoted herewith.

Management backing is essential to written statements of policy. Without it, they are useless. The statement by Cleveland Graphite's president, appearing on the first page of the manual, is a good example of how strong management support makes for a strong and efficient purchasing department.

*Management's OK
makes purchasing
policies stick!*

THE CLEVELAND GRAPHITE BRONZE COMPANY

PURCHASING DEPARTMENT MANUAL

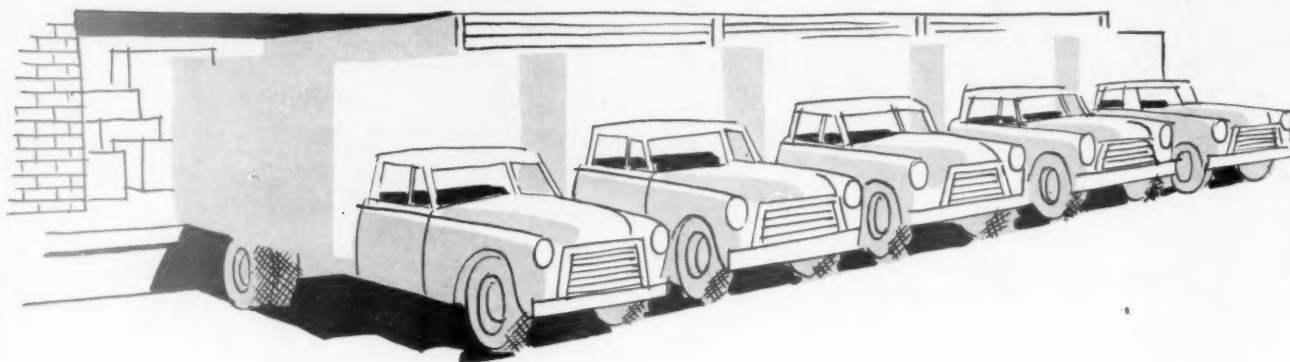
THIS MANUAL HAS BEEN PREPARED TO SET FORTH THE OBJECTIVES, POLICIES AND RESPONSIBILITIES OF THE PURCHASING DEPARTMENT.

THE CONTENTS OF THE MANUAL CONFORM TO THE BASIC POLICIES AND OBJECTIVES OF OUR COMPANY.

William G. Laffer
WILLIAM G. LAFFER
PRESIDENT

THE CLEVELAND GRAPHITE BRONZE COMPANY
RELATIONS WITH OTHER DEPARTMENTS

1. It must be recognized that the Purchasing Department is the primary point of contact between the company and its suppliers.
2. The Purchasing Department has a primary purpose of conserving the time of operating, engineering, and other personnel whose responsibilities and specialties lie elsewhere.
3. All requests for price information, demonstrations, samples, and trial lots are made through Purchasing.
4. There are certain instances where Purchasing acts in a liaison capacity in the original contact with an outside supplier and does not wish to participate in subsequent discussions. In such cases, Purchasing is kept fully informed of progress by the parties involved.
5. Negotiations, commitments, and expressions of opinion of a binding nature on merit and acceptability of a product are not considered in discussions between other departments and vendors without prior concurrence and discussion with Purchasing.
6. No person outside the Purchasing Department will divulge information regarding the source of supply for any products, competitive performance, or past prices paid for products and services.
7. It is recognized that Purchasing will receive and interview all supplier representatives. Personnel from other departments requiring information from supplier representatives will so notify the Purchasing Department. Purchasing, in turn, will make necessary arrangements or authorize the requester to contact the source directly.
8. Purchasing retains full authority to question the quality and type of material requested in order that the best interests of the company may be served.
9. Purchasing retains full authority to check quantities ordered for conformance to manufacturers' standard packages and quantity discounts.
10. Embarrassment to the company is prevented by having a single management source, namely the Purchasing Department, present all opinions on the merits and acceptability of any purchased product. The company recognizes the importance of centralization with respect to purchasing.



Automotive Vehicles . . .

BUY or LEASE?

You can purchase transportation with or without capital investment. Here is a tabulation of the cost factors to be considered in your decision

By Eugene S. Page

RECENTLY—especially during the past five years—there has been much discussion and controversy as to the relative merits and economics of the rental or leasing of property vs. purchase and ownership by those who will use such property for productive, profit-making purposes. Major leasing practice has been the sale and lease-back of manufacturing plants and office buildings. Next has come the rental of automobiles and trucks—one or an entire fleet—by members of industry as well as by public transportation companies. Most recent development has been the promotion of leasing plans for machine tools.

This article deals entirely with the question of ownership or rental of automotive vehicles. However, the analysis and reasoning suggested is applicable in large measure to

problems of purchase or lease of any property or facility.

The basic question is: "Shall we buy or lease?" There is no one easy answer. It is a matter of analyzing and evaluating all of the cost elements under both systems, and in each type of lease available.

Actually we are not talking about automotive vehicles, as such. We are concerned with **TRANSPORTATION**—a fundamental service, the necessary movement of passengers or commodities over the public highways. The decision on a method for the acquisition and use of the vehicles involved must be based on appraisal of every element of quality and service which affects the efficiency and cost of the transportation required. Transportation also requires a driver. Therefore our comparison must include

consideration of the cost of personnel for driving—regardless of whether they are supplied and paid by the owner or by the lessor.

PURCHASE OF AUTOMOTIVE VEHICLES is their acquisition, at definite, known costs, for private or corporate ownership and use.

The buyer receives and accepts the vehicles at point of delivery, subject to certain time and mileage warranties if new. All operation and management, supplies and maintenance, protection and taxes, are the sole responsibility of the owner, who also furnishes the driver. All depreciation and risk of loss are vested in the owner, who must also be prepared for every contingency that may arise from use. In short, the vehicle owner receives all benefits, assumes all liabilities, and pays all costs.

LEASE OR RENTAL of automotive vehicles is their acquisition for possession, control, and use, under varied conditions and costs, dependent upon the terms of the lease agreement.

The lessee receives and accepts the vehicles at point of delivery, subject to stipulated time and mileage provisions and charges. The performance and expense of operation and management, and responsibility for supplies and maintenance, protection and taxes, are determined by the agreement between the owner of the vehicles (lessor) and the user (lessee).

In short, the benefits, liabilities and costs of automotive ownership and operation are now split between lessor and lessee. In the final analysis, the lessee must pay all costs (both his own and those of the lessor) plus a profit to the lessor. Whether or not this will

prove advantageous to the lessee depends upon what he receives from and pays to the lessor, as compared with his own efficiency and costs of ownership operation.

Types of Lease

The difference between rental of automotive vehicles and the hiring of transportation is essentially a matter of degree, depending upon the amount of service also furnished by the lessor. In general, all vehicle leases fall into three broad categories:

A. VEHICLES ONLY. (The basic method.) Lessor supplies the required automobiles or trucks, equipped as specified, but nothing else—no service of any kind. Lessee operates, supplies, and protects the equipment as though he owned it.

In one sense, the lessee has borrowed vehicles rather than money. However, there are important differences from the financial viewpoint. The leased vehicles do not appear as assets, nor their equivalent value as liabilities, in the financial statement. All costs to the lessee are "expensed" and not "capitalized".

B. VEHICLES PLUS SERVICES. (The major method.) Lessor supplies the vehicles desired, **plus** any or all supplementary services such as management, protection, supplies, maintenance, taxes. Lessee furnishes driver, plus whatever services are not supplied by the lessor.

Here again, the lessee has borrowed equipment instead of money. But he has also contracted for some of the operations he otherwise would have to do himself, gathering the costs therefor into established rates which he pays to the lessor. Again, all costs to the lessee are "expensed" and not "capitalized".

C. VEHICLES PLUS SERVICES PLUS DRIVER. (The purchase of complete transportation service.) Usually where the driver is furnished, the lessor also supplies all other services (and, of course, the vehicles) to provide **entirely** the desired result—transportation. Examples of this type of arrangement are:

1. The "rental" of automobiles owned by employees who use their cars on company business, for which the employee is paid at rates based on mileage and/or other expense factors.

2. Trucking by "contract" or in truckloads or LTL under published freight rates.

3. Limousine service and taxicabs in large cities.

In some of these examples there will be no formal lease agreement. Nevertheless, this is an important type of hired transportation.

Now, to determine whether to buy or lease, and what method of leasing will be most advantageous, four basic factors must be appraised.

1. QUALITY. By this is meant the character or grade of transportation, as represented by:

a. The quality or class of automobile, to which importance is attached through comfort or prestige.

b. The power, weight, and capacity of a truck required by size and type of payload and its protection in transit.

Usually, the "quality" of vehicles obtainable will be the same under either purchase or lease.

2. SERVICE. This embraces the many and varied elements which contribute to transportation which is (a) timely; (b) safe; (c) reliable; and (d) fast. The elements of "quality" are involved in the transportation service factor. In addition, there are all of the actions required to produce the best in transportation service, summarized as (a) management; (b) protection; (c) supply; and (d) maintenance.

Responsibility for the performance of these actions, and their accomplishment, vary widely, depending upon operation through ownership or lease, the facilities and efficiency of the owner and lessor, and the terms of the agreement. Quite aside from all other considerations, including those of cost, vital attention must be given to the abilities of the operating-owner, lessor, or lessee in performing the management, protection, supply and maintenance which are essential to dependable, low cost transportation service. (Details are set forth in a following section.)

3. COST. Every element of cost which may or will be incurred in the production of automotive transportation must be considered, determined, evaluated, and compared under the various alternatives. The relative costs of operation are the principal determinants in "Buy or lease?" decisions.

4. FINANCE. Quite apart from the problems of efficient, economical transportation are those related to the financial position of your company. The financial decision may support—or reverse—a decision based on Quality-Service-Cost. Here are the reasons:

1. Automotive vehicles are capital equipment. When purchased, they are capitalized on the books of the owner, and the cost is

charged off as an item of expense against income at a proportionate yearly rate. Therefore, in the year of purchase, the entire cost of ownership may not be deducted from income with a resultant saving in income tax for that year. The importance of this is debatable, since the write-off or depreciation charges are assessed against income in future years.

2. If purchase is made with available cash, net working capital is reduced and fixed assets are increased—not a desirable combination.

3. If purchase is made with borrowed funds, fixed assets and short and long term liabilities are increased. Ratio of current assets to current liabilities is decreased.

4. If vehicles are leased or transportation service hired, there may be an increase in contingent liability, depending upon the terms of the lease, but no change in financial position.

5. If neither cash nor credit are available for the purchase of necessary vehicles, leasing may be the only alternative.

6. Based on the foregoing, financial consideration tends to favor leasing. Certainly, however, it is not a deciding factor alone, but one to be used along with thorough evaluation of Quality-Service-Cost.

Elements of Cost

Of the four basic factors, Cost is the most specific, the most easily estimated and compared. Quality, to many, is a matter of judgment and opinion, and is frequently the same regardless of ownership or lease. Service, and the efficiency with which it is applied, is a vital factor, but one which depends upon the facilities and abilities of the individual owner, which may or may not be superior to those of a lessor in his locality. Cost, however, demands the most thorough analysis.

Unfortunately, there has been a lack of basic approach to cost appraisal—the segregation of costs into types and groups for evaluation and comparison. Many analyses include tangible items, such as gasoline, but omit intangible elements such as administration. And there is practically a total absence of country-wide or industry-wide standardization of cost elements.

The complete cost analysis must include both fixed and variable costs of possession, and fixed and variable costs of use, arriving at total cost per year and per mile under all

types of acquisition. Here are the major elements:

I. COST OF POSSESSION

1. DEPRECIATION. With ownership, the value of a vehicle declines continuously, although not at a constant rate, the greatest depreciation occurring in the first year. However, it is customary to write off the original purchase cost evenly over a set period. Depreciation is taken down to zero, even though trade-in or scrap value will exist. In all types of leases, the cost of depreciation is borne by the lessor, who plans to recapture the value in his charge to the lessee.

2. INTEREST ON INVESTMENTS. This is a definite part of the cost of ownership and should be charged as a cost against the depreciated value of vehicles. The rate of charge is a matter of judgment. It may be the rate at which the money could be borrowed—3½% to 6%. Or, as working capital used in trade, it might earn a net return of 5% to 15%. In leases, this cost is borne by the lessor, who must recapture it in his charges to the lessee.

3. PROPERTY TAXES. Some states assess personal property taxes against the value of automotive vehicles. Such taxes are a part of the cost of ownership. In leases, the lessor (owner) is theoretically subject to any personal property taxes. However, the terms of the lease may require payment by the lessee.

II. FIXED COSTS OF USE

A. Management

4. ADMINISTRATION. There are many costs of administration involved in the purchase, operation and maintenance of vehicles and in the processing of papers attendant to these actions. Even under a lease arrangement, there will be costs of administration incurred by the lessee, but such costs will vary, depending upon the type of lease. With Type A, the costs will be the same as for ownership. With Type B leases, the costs will be roughly one-third to one-half those under ownership. With Type C leases, these costs will be greatly reduced, to 10% or less than those of ownership.

5. MAINTENANCE. This is not the cost of maintenance, but the cost of obtaining it—the cost of supervising the condition of each vehicle in the field, by the salesman, service man, or driver. If this person is paid by the hour, the yearly cost may be substantial where the maintenance is performed by outside services. If the owner maintains his own service facilities, the costs in this category are those represented by the administrative and non-productive supervision of such facilities. With Type A leases, these costs are the same as for ownership. With Type B leases, costs to the lessee will be reduced, and possibly eliminated, according to the amount

of service furnished by the lessor. With Type C leases, costs are borne by the lessor and included in his rates.

6. OPERATION. The cost of wages for all personnel travelling with each vehicle who are paid specifically for the job of providing transportation service (but not personnel who drive in order to perform other work at various locations). Same costs are incurred by lessee with Type A or B leases. No cost under Type C, since rate charges cover entire service.

B. Protection

7. INSURANCE. All costs for insurance to protect both the owner and driver against claims for personal liability and property damage, and to protect against loss by fire, theft, or other causes. In Type A leases, lessor usually carries protection against loss of vehicle or damage thereto, but other insurance costs are for the lessee, as under ownership. With Type B, lessor may furnish insurance protecting the lessee, but the latter may wish to obtain supplemental or contingent insurance at his own additional cost. With Type C, lessor's insurance coverage is usually complete, but it is prudent for the lessee to check this thoroughly.

8. STORAGE. All costs for vehicle storage are incurred by the owner, or by lessee under Type A lease. Daily storage may or may not be included under Type B, according to terms of the agreement. No cost to lessee under Type C.

9. STAND-BY AND REPLACEMENT. To guarantee reliable transportation, always available when needed, often requires stand-by vehicles, owned or leased. This cost is part of the total cost of ownership transportation. Under lease, terms of the agreement govern. Lessor may include provision for replacement vehicles in case of breakdown, with or without additional charge. Any additional charges become a part of the cost of leased transportation.

C. Taxes

10. TAXES. Cost of vehicle taxes, state and city, accrues to owner or to lessee under Type A lease. In Type B, lessor may or may not include vehicle taxes in his rate charge. No cost to lessee under Type C.

III. VARIABLE COSTS OF USE

A. Supplies

11. GASOLINE. All costs are borne by owner, or lessee under Type A lease. Type B lease may or may not include gasoline costs. No cost to lessee under Type C.

12. ENGINE OIL. Same as gasoline costs.

B. Maintenance

13. MECHANICAL AND ELECTRICAL MAINTENANCE. If the lessor

provides any service at all, in a Type B lease, he will probably include mechanical and electrical maintenance within his rental rates. Check to see whether this includes reimbursement to lessee for necessary maintenance work done on the outside.

14. TIRE REPLACEMENT AND REPAIRS; WASH; GREASE; CHAINS; WINTERIZE. Performance and payment of costs under Type B lease depends on terms of the lease. All costs paid by lessee under Type A, by lessor under Type C.

15. PAINTING AND LETTERING. Original job and maintenance may be by lessor or lessee, in accord with terms of the lease.

16. ROAD SERVICE; TOWING. Estimated costs for such emergency service should be included in every analysis of ownership costs. Lease agreements may or may not include provision of reimbursement to lessee of costs incurred.

17. ACCIDENT REPAIRS. Make provision in your analysis for all costs not covered by insurance. Lessor under Type A and B leases usually carries deductible type of collision insurance, under which lessee must pay all costs for leased vehicle repairs up to the nominal deductible amount for which the insurance company is not liable.

C. Miscellaneous

18. ALL MISCELLANEOUS COSTS, such as parking fees, bridge tolls, out of town storage, etc., are paid by owner or lessee.

Terms of the Lease

If the decision, based on a full analysis of all factors, is in favor of leasing, there still remains the problem of the lease agreement itself. There is no standard form. Each company in the business has its own preferred method of operation and its individual lease agreements. The prospective lessee should give particular attention to the following:

SPECIFICATION—exact description of each vehicle to be furnished by the lessor, including:

1. Manufacturer, year, and model number.
2. Power, weight, and capacity.
3. All special features.
4. Initial paint, and special lettering, if any.
5. If lessor is to be responsible for stand-by and replacement service, the quality of equipment he shall furnish when required must also be closely specified.

SERVICE. Specify exactly what services will be furnished by the lessor (and check his facilities and financial responsibility for discharging these responsibilities).

COST. Rental rates are usually determined, for each vehicle, based
(Please turn to page 318)

Some Recent Court Decisions in Lawsuits Affecting Purchasers

*The experience and mistakes of others
can help you avoid litigation and loss*

By Leo T. Parker

DURING the past few months the higher courts in different states rendered several outstanding decisions affecting purchasers.

First, I shall answer an important legal question submitted by a purchasing agent of a large corporation sometime ago. This reader wrote: "Some time ago our com-

modity had been delivered to our warehouse the day after I gave the order. It developed that delivery was made a few minutes after the closing time of our warehouse, and that thieves had accepted delivery of the goods. The seller has sued our company for the value of the merchandise. Do you know of any

ARE YOU WAITING
FOR SIX TV SETS?

SURE WE'LL TAKE THEM.
WE'LL EVEN GIVE
YOU A RECEIPT



**DELIVERY OF GOODS TO SPECIFIED LOCATION
IS CONSIDERED TO BE DELIVERY TO THE BUYER**

pany purchased a quantity of merchandise and ordered it delivered to our warehouse. After waiting a few days for delivery, I telephoned the seller, who said that the mer-

chandise had been delivered to our warehouse the day after I gave the order. It developed that delivery was made a few minutes after the closing time of our warehouse, and that thieves had accepted delivery of the goods. The seller has sued our company for the value of the merchandise. Do you know of any

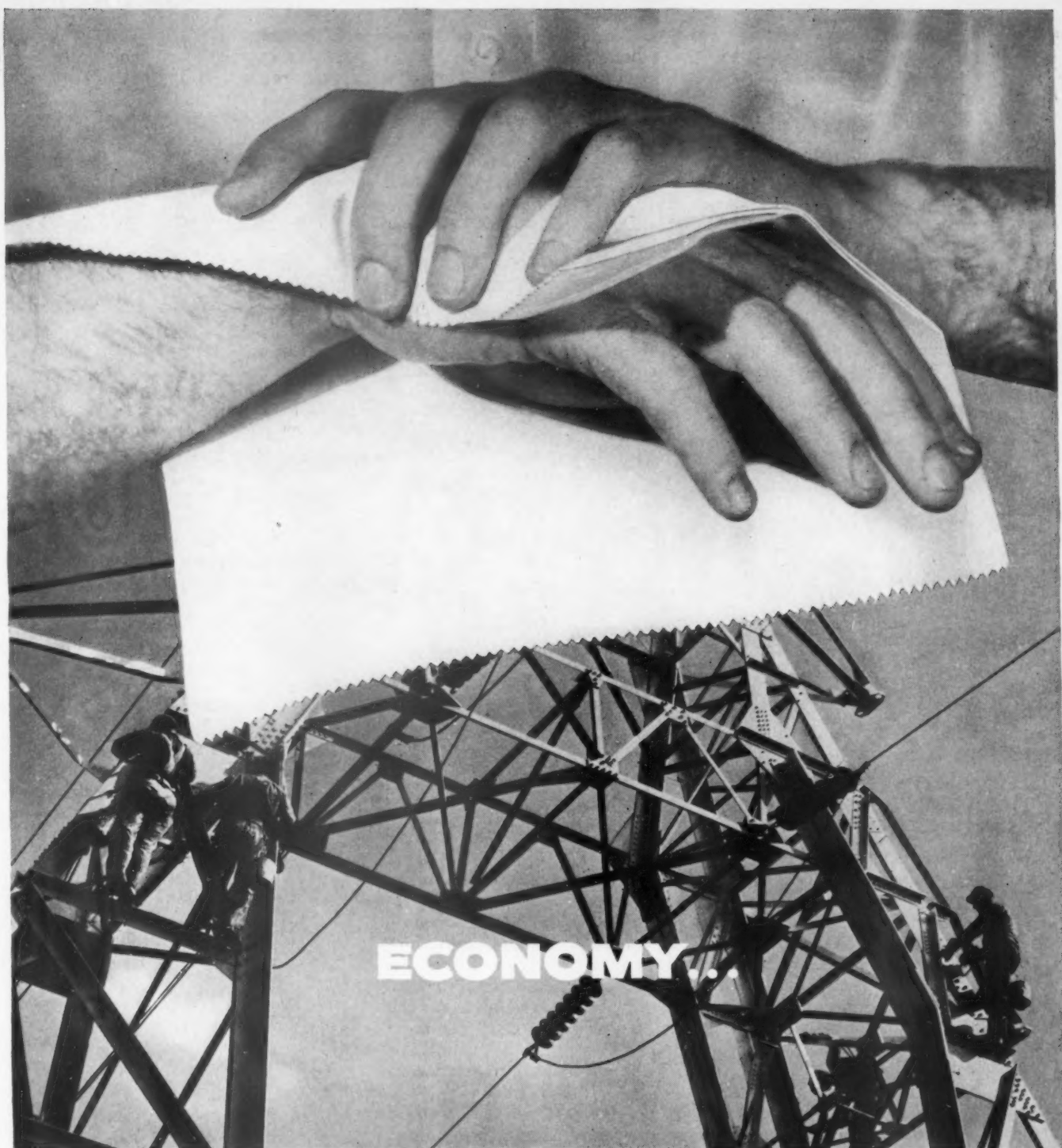
destroyed what legal rights has the warehouseman to refuse to pay us the value of the destroyed merchandise? We now have a similar pending law suit."

For the benefit of all readers, I reviewed numerous late and leading higher court decisions on which to base my answers to these two important legal questions, and located a higher court case decided only last month which clearly holds that if a seller or carrier delivers merchandise to an unidentified person who has apparent authority to accept delivery, neither the carrier or seller is responsible for the wrong or improper delivery.

Seller Obtains Receipt

For example, in *The Regal Company v. The Legum Distributing Company*, 111 Atl. (2d) 613, the testimony showed facts, as follow: A truck driver named Brown was employed by The Regal Company. Brown was ordered by an official of The Legum Distributing Company to transport six television sets to the warehouse of The Legum Distributing Company. Brown did so. He had been given by his employer a delivery slip in duplicate, a white copy for Legum and a yellow copy to be signed by Legum as a receipt. When Brown arrived at Legum's warehouse, he backed his truck inside the warehouse at the platform and two white men, whom he had never seen before, soon were at the tail gate of his truck. They had opened the warehouse door for him. When Brown had previously delivered refrigerators at that location, he had been assisted in the unloading by white men. On this occasion he carried the television sets to the tail gate of the truck and the two men took them off of the tail gate. One of the men signed the yellow copy of the receipt with a "W" and returned it to Brown.

A few weeks later it was discovered that The Legum Distributing Company had not received the television sets and that the two men who had received the sets did not work for the company. In other words, the sets apparently were



First with America's public utilities

NIBROC® TOWELS ... first wet strength towel
and still the finest ... More power and light companies use

economical Nibroc Towels than any other paper towel. It's the same with most industries and institutions. That's because Nibroc Towels are super-absorbent—strong—sanitary—soft-textured! Buy the finest—Nibroc Towels and Nibroc Sofwite or Softan Tissues—from a single source.

For name of distributor, see "Nibroc" in your classified directory or write Brown Company, Dept. NG-12, 150 Causeway Street, Boston 14, Mass.



stolen or misappropriated by the two men who had received them from Brown. The Legum Distributing Company sued The Regal Company for \$1,515, the value of the six television sets.

The legal counsel for The Legum Distributing Company argued that The Regal Company was responsible since Brown, an employee of The Regal Company, had delivered the sets to two unidentified men, not agents of The Legum Distributing Company, who opened the door of the warehouse.

It is important to note that the higher court held that The Legum

and delivered to a buyer who denied the delivery. The wine was delivered to the purchaser's address by a carrier who was paid by the seller. Unidentified persons at the seller's address appropriated the wine.

This higher court held that the purchaser must bear the loss, and said:

"A seller who is told to deliver goods at the purchaser's premises discharges his obligations if he delivers them there without negligence to a person apparently having authority to receive them. His duty is to deliver the goods at the proper place, and, of course, to take

The reason for this law is that the courts recognize that a warehouseman is in a better position to know and account for the loss of the goods than is the owner because the latter, generally speaking, does not have the knowledge or information on which to base his testimony.

In the late case of *Shockley v. Tennyson Transfer & Storage*, 278 Pac. (2d) 795, the facts are: A purchaser named Shockley stored valuable merchandise with Tennyson Transfer & Storage, and paid all storage and incidental charges. Several months later a fire of unknown and undeterminable origin burned the warehouse and contents. The fire originated inside the building, where among other things were stored tanks of anhydrous ammonia, also numerous containers filled with weed killing solution. After the fire started, some explosions occurred because of the intense heat produced. It was not determined that the fire was caused by an explosion. There was no evidence that it was. Anhydrous ammonia is not inflammable, but would and did explode when subjected to the heat of the burning building and contents. Neither was the particular weed killing solution shown to be of an inflammable or explosive character. No explosives or material known to be of an explosive character were stored in the building.

Further testimony showed that no watchman was maintained on the premises. The warehouse building was equipped with fire extinguishers but no automatic sprinkler system was installed. The warehouse was of brick modern construction and complied with all city regulations relative to safety. Members of the city fire department, at various times prior to the fire, inspected the building and contents and found no violation of fire regulations. The fire occurred about 3:30 in the morning at a time when the building was locked and unoccupied. It had been inspected by the president of the warehouse company five hours before the fire started and everything was in good condition. Signs prohibiting smoking were placed at various parts of the warehouse. There was no evidence that any violation of this rule caused the fire.

The counsel for the warehouse company argued that the company should not be liable for loss of Shockley's merchandise because the testimony showed it had a good

EVERYTHING
SEEMS TO BE
UNDER CONTROL.
GUESS I'LL GO
HOME AND HIT
THE HAY



FAILURE TO PROVIDE WATCHMEN OR AUTOMATIC FIRE PROTECTION IS CONSTRUED AS NEGLIGENCE

Distributing Company must stand the loss, saying:

"The question before us whether the delivery of these television sets inside The Legum warehouse, to which Brown had been directed by Legum to deliver them, constituted delivery to Legum. Here, it is admitted that Brown was told by Legum to take the television sets 'to the Jackson Street warehouse'. He was not told at what location there to deliver them or to what person or persons delivery should be made. We must conclude that these men, who opened the warehouse door from the inside, took the television sets from the truck and placed them on the platform, had authority 'apparent' to Brown to receive them. We are not of opinion that Brown was negligent in not inquiring as to the names of the men or of looking them over so carefully as to be able to describe them."

For comparison, see *Galbraith & Grant Ltd. v. Block*, 1022, 2 K. B. 155. Here a suit was brought by a seller to recover the price of wine which it was alleged had been sold

all proper care to see that no unauthorized person receives them. He is under no obligation to do more. If the purchaser has been unfortunate enough to have had access to his premises obtained by some apparently respectable person who takes his goods and signs for them in his absence, the loss must fall on him, and not on the innocent carrier or seller."

When Warehouseman is Immune

A few weeks ago a higher court rendered an unusually important decision explaining the legal duty of a warehouseman to safeguard stored goods against damage or destruction. This court held that if a warehouseman is unable to deliver stored goods on demand of the owner, the warehouseman bears the burden of proving that he exercised due care to safeguard the goods and that the stored goods were not destroyed because of his negligence. The warehouseman's failure to introduce this proof entitles the owner of the destroyed goods to recover their full value.

Get **ENGINEERED** Felt from American YOU'LL LIKE IT, AS DOES Whirlpool



**STATEMENT
BY
Whirlpool**

"Whirlpool Corporation has used felt products for some time. At present they are used on our new high-speed dryer as well as our conventional dryer. Felt is satisfactory as to pressure or vacuum, and it is giving satisfactory service as to temperature resistance.

"The particular type of felt which we are buying is much more satisfactory than anything previously used, including other materials. This is because of the resiliency of the material, which is designed inherently to flex back into its original position."

American supplies Whirlpool Corporation, St. Joseph, Mich., with felt for its dryers. The Imperial model shown here uses plain felt as a seal at the loading port. At the exhaust, where the air is hot and full of moisture, the felt is blended with Hycar, which provides moisture resistance. The dryer drum rotates at 45 r.p.m., and the felt seals effectively keep heated air and moisture out of the cabinet, and heated air in the drum at somewhat less than atmospheric pressure during operation. The seals are supplied as sewn rings, ready for fast, economical installation.

This is an outstanding example of thorough engineering applied to an application of felt. American will be glad to collaborate with you on the use of felt on your present or proposed products.



GENERAL OFFICES: 74 GLENVILLE ROAD, GLENVILLE, CONN.
SALES OFFICES: New York, Boston, Chicago, Detroit, Cleveland, Rochester, Philadelphia, St. Louis, Atlanta, Greenville, S.C., Dallas, San Francisco, Los Angeles, Portland, Seattle, Montreal.—**PLANTS:** Glenville, Conn.; Franklin, Mass.; Newburgh, N.Y.; Detroit, Mich.; Westerly, R.I.—**ENGINEERING AND RESEARCH LABORATORIES:** Glenville, Conn.

substantial modern and clean brick warehouse building; it had fully complied with all city fire regulations; had no explosive materials in storage; had frequently inspected the building and premises; and permitted no smoking on the premises.

Proof Lacking

Nevertheless, the warehouseman failed to prove that he had exercised "ordinary care" to protect the stored goods against fire loss because (1) he had no knowledge of how the fire started; (2) no watchman was on the premises when the fire started; and (3) the warehouse building was not equipped with any device such as an automatic sprinkler system to extinguish the fire.

Therefore, the lower court held the Tennyson Transfer & Storage liable to Shockley for the full value of the destroyed merchandise. The higher court approved the verdict, saying:

"Establishing that the origin of the fire is unknown is not sufficient in itself to free the warehouseman from liability. The bailor (Shockley) having proved a *prima facie* case, and the fire having originated inside of the building from an unknown cause, the question as to whether or not the bailee (warehouseman) exercised the degree of care required was a matter to be determined by the (lower court) trier of the facts."

This court also explained that when the owner of destroyed merchandise establishes a contract of bailment, delivers the goods to the warehouseman, and tenders the storage charges and other incidental costs, then the failure or refusal of the warehouseman to return the goods places the burden on the warehouseman to prove the existence of a lawful excuse for such refusal.

Certain readers may desire to read other similar warehouse law suits in which the higher courts have explained the law pertaining to the kind of testimony the warehouseman must introduce to win a suit filed by the owner of stored goods destroyed by fire and various other causes. Here are relevant cases: Denning Warehouse Company v. Widener, 172 F. (2d) 910, 13 A.L.R. (2d) 669; George v. Bekins Van & Storage Company, 33 Cal. (2d) 834; Hanson v. Wells Van & Storage Company, 223 P. (2d); 509; Caldwell v. Skinner, 100 Kan. 567; Alabam's Freight Company v. Himenez, 40 Ariz. 18; Yazoo & M.

V.R. Co. v. Hughes, 94 Miss. 242; Traders Company v. Precure, 140 Okl. 40; Cole v. Hounger, 58 N. M. 211; and Lederer v. Railway Terminal & Warehouse Company, 346 Ill. 140.

The above listed higher court decisions substantially hold that a warehouseman always is liable for loss, injury or damage to stored goods caused by his failure to exercise such care as a reasonably careful owner of similar goods would exercise to safeguard the merchandise. Also, these higher courts held that if a warehouseman fails to deliver stored goods in compliance with a demand by the warehouse receipt holder the burden is upon the warehouseman to prove that he used ordinary care to safeguard the stored goods and same were lost or destroyed not because of his negligence.

Can't Confuse Owner

Modern higher courts consistently hold that a warehouseman automatically becomes liable for loss, injury or destruction of stored goods which a warehouseman re-

building situated at 5619 Delmar. Printed vertically was as follows, "Fireproof Storage — Sprinkled Warehouse — Low Insurance Rates". Also, the warehouse company's letterhead included the words thereon, "New Modern Storage Warehouse". The warehouse company had another warehouse building at 1167-69 Hodiament Avenue.

A purchaser named Brown delivered certain salable merchandise to the warehouse company for storage. The goods were stored in the warehouse situated on Hodiament Avenue, which was destroyed by fire, and Brown's goods were destroyed.

In subsequent litigation, Brown testified that after reading the company's advertisements he believed that his goods would be stored in the fireproof warehouse building on Delmar Avenue when in fact they were stored in the warehouse on Hodiament Avenue, which was a building unsuited for safe storage of his goods as it was of old construction with a wooden floor and the building was without

MY GOODS SHOULD BE SAFE HERE



STORED GOODS MAY NOT BE MOVED TO ANOTHER WAREHOUSE WITHOUT THE OWNER'S PERMISSION

moved from one warehouse building to another building without consent of the owner of the stored goods. Last month a higher court broadened this usual law and held that advertisements of fire proof storage published by a warehouseman is good testimony in favor of the owner of destroyed merchandise.

For example, in Brown v. Slo Moving & Storage Company, 274 S. W. (2d) 310, the testimony showed facts as follow: The Slo Moving & Storage Company paid for an advertisement in the telephone book which included a "cut" of a 7-story

adequate fire walls, fire doors and fire-proof partitions to prevent the rapid spread of fire throughout the building. The warehouse was also without adequate fire protection as it had no sprinkler system or automatic fire warning devices. The higher court said:

"The advertisement did not disclose that defendant (Slo Moving & Storage Company) had a warehouse on Hodiament Avenue or elsewhere which was not fireproof. We think the wording of the advertisement might reasonably be understood as a representation that all of defendant's storage facilities

Here's where you get the answers to steel problems

● Look under "The Youngstown Sheet and Tube Company" in one of these alphabetical or classified phone books.

They represent the 28 conveniently located district sales offices Youngstown maintains across the country. Offices staffed by men who know the steel business. Men who know and understand **your** steel problems. Men who are qualified to help you get the specific steel you need.

When you want answers to steel problems in a hurry, just call the Youngstown office nearest to you.



THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of
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General Offices Youngstown, Ohio District Sales Offices in Principal Cities.

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT -
MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - WIRE - HOT ROLLED RODS - COKE
TIN PLATE - ELECTROLYTIC TIN PLATE - BLACK PLATE - RAILROAD TRACK SPIKES - MINE ROOF BOLTS

For More Information Circle No. 212 on Inquiry Card—Page 17

were fire-proof and were equipped with sprinkler systems. We believe it could be reasonably found that the advertisement was intended and designed to convey that impression to the public generally including plaintiffs."

Must Follow Instructions

Several months ago a manufacturer wrote me an interesting letter in which he asked whether a warehouseman can without liability deliver presently stored merchandise to any partner of a partnership which owns the stored goods. This manufacturer also asked whether a contract is valid and enforceable under which the warehouseman has the privilege of selling any part, or all of the stored merchandise, and then remitting to the owner an agreed sum of money.

The answer to the first question is positively no, unless the partner produces and gives up to the warehouseman the warehouse receipts representing the merchandise.

Recently a higher court held that irrespective of the business relationship between persons who store merchandise in a warehouse, the warehouseman is legally obligated to strictly comply with warehouse receipt notations when releasing or delivering any part of or all of the stored goods.

For example, in *Friednash v. Lawrence Warehouse Company*, 263 Pac. (2d) 45, the testimony showed that a man named Perenchio had purchased 50,000 gallons of wine and paid \$6,750 down to the seller. One Friednash agreed to finance the deal by investing \$12,000 of his own money and to borrow \$20,000 from a bank which, added to Perenchio's \$6,750 paid down on the wine, made the total value of the wine \$38,750. Profits made on the wine when it was sold were to be divided equally between Friednash and Perenchio. Later, as agreed, Friednash paid the \$12,000 and procured a loan of \$20,000 from Union Bank and Trust Company to be applied on the purchase price which Perenchio still owed on the wine. At this time the wine was in storage with the Lawrence Warehouse Company, which signed and delivered to the bank its warehouse receipt for the wine, stating that it had received for the account of Friednash 50,000 gallons of wine.

Soon afterward, Friednash repaid the \$20,000 to the bank out of his own funds and directed the bank to forward its papers and warehouse receipts concerning the wine to

him, Friednash. The bank signed and delivered to the warehouse company written instructions for release of the wine, authorizing it to deliver the wine to Friednash. A portion of the wine was delivered from the warehouse to Friednash.

An official of the warehouse company, knowing that Friednash and Perenchio were partners on the wine deal, delivered the balance of the wine to Perenchio without presentation of the warehouse receipts. It was the warehouseman's theory that because Friednash and Perenchio had both contributed to the purchase price and were to share in any profits, the warehouseman could deliver the wine to either person.

The higher court held the wine company liable to Friednash for \$23,815.13, and said:

"From the entire record in the case it appears that this delivery of wine to Perenchio was without justification or excuse. The warehouse receipt and release do not mention Perenchio. Plaintiff (Friednash) is the only person named in these documents."

Legal Duties of Warehousemen

Modern higher courts consistently hold that the rules of law applicable to the position and relation occupied by public warehousemen, and to their duties, are the same that apply to trustees and others who occupy fiduciary relations. Also, various laws establish limitations upon the power of the warehousemen, who have a confidential relation, and these laws are strictly construed by the courts against warehousemen, if any doubts arise as to the interpretation of such laws. Moreover, any and all agree-

ments, whether oral or written, between warehousemen and the owners of stored goods, are void which violate valid state laws.

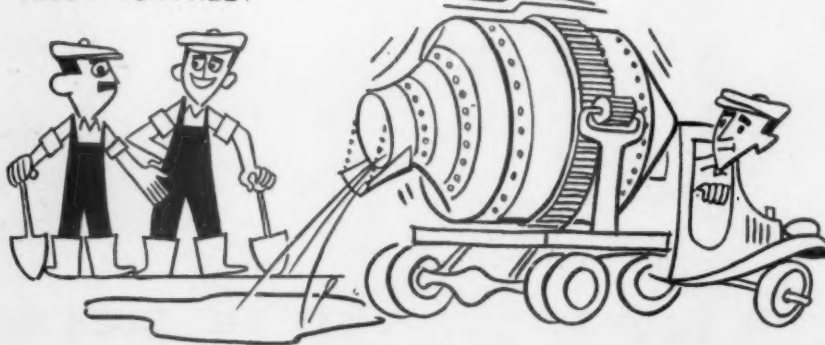
For example, in *Mercantile Trading Company v. Advance Storage Company*, 113 N. E. (2d) 195, the testimony disclosed complicated facts, as follows: 800 hospital tents, together with a number of poles and stakes, were purchased by one White from the United States Government, and these items were stored by White with the Advance Storage Company. One year later White informed the warehouse company that he desired to take the tents out of storage. Then the warehouse company gave White a statement of due storage charges in the sum of \$1,949.78 which White paid in full. After the merchandise was removed from storage, White discovered a shortage of 20 tents, 19 bundles of poles and 4 cases of stakes. White sued the warehouse company for \$3,980, the alleged full value of the missing merchandise.

The warehouse company defended the suit, as follows: First, its officials testified that before the warehouse receipts were issued, White, in a conversation, had agreed orally to allow the warehouse company to pay \$100 for each complete tent which it may sell. Based on this evidence, the lower court decided that an oral agreement existed between the parties whereby the warehouse company was authorized to sell tents and remit to White \$100 for each tent sold.

The higher court reversed the verdict, holding the warehouse company liable to White for \$1,949.78 and held that the oral

(Please turn to page 304)

LOOK ! FOR FREE !



A CORPORATION NEED NOT PAY FOR MATERIALS WHICH
ITS OFFICIALS DID NOT ORDER OR ACCEPT

NEW WHITING HEAVY-DUTY TRACKMOBILE® BOOSTS PRODUCTION

Now... get faster, lower cost freight car switching! Speed up car movements in your yard and plant with the new Heavy-Duty Trackmobile. Expedite loading and unloading operations... add new efficiency to traffic handling... give new impetus to higher production.

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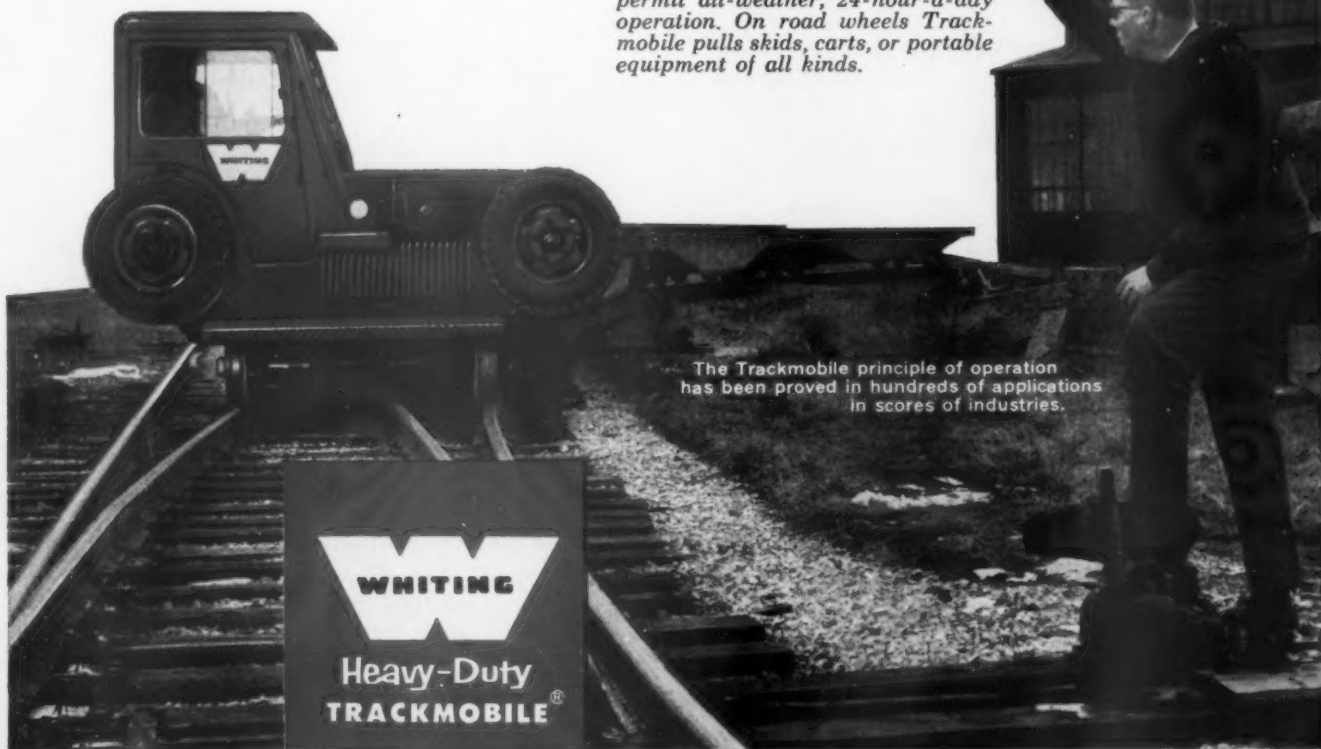
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Discover how the Trackmobile can solve your specific freight car handling problems. Write today for the new Heavy-Duty Trackmobile Bulletin T-115.



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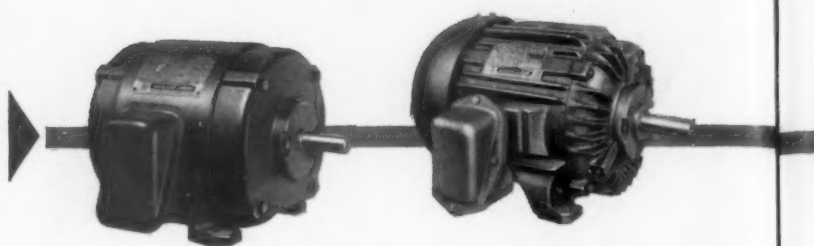
Purchasing Men — Simplify Allis-Chalmers SINGLE SOURCE of

Motors

There's an answer to your motor problems in Allis-Chalmers wide line, ranging from ½ hp up to the largest.

Standard open drip-proof, splash-proof, totally-enclosed, fan-cooled and explosion-proof types are available. There are also wound-rotor, direct current, and special motors.

Outstanding in the Allis-Chalmers line are motors with fin cooling and tube cooling.



General purpose motor

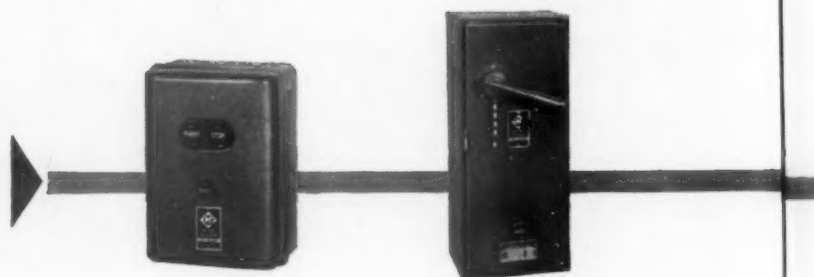
Totally-enclosed fan-cooled motor

Control

For every control need. For across-the-line control of motors operating on 110 to 600 volts, Allis-Chalmers offers:

Manual Starters, sizes 0 and 1 for motors to 7½ hp. *Magnetic Starters*, sizes 0 to 7 for motors from fractional to 600 hp. *Combination Starters*, sizes 0 to 5 for motors to 500 hp.

A wide range of high voltage control and package drive equipment is also available.



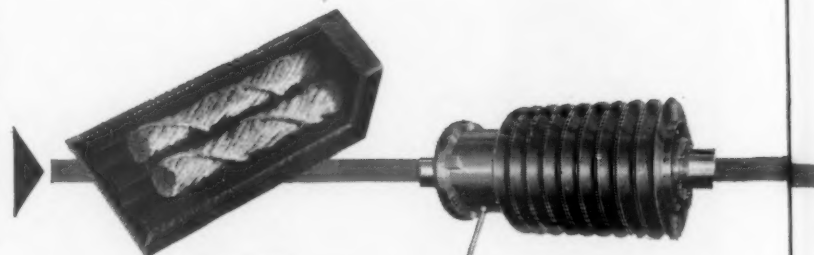
Across-the-line starter

Combination starter

Texrope Drives

Here's the widest line of V-belt drive equipment — the greatest engineering knowledge in the industry.

Note the range of equipment indicated on this page. There is no source other than Allis-Chalmers for all of these items. That's one big reason you get the right drive for the job with a *Texrope* drive.



Texrope grommet belts

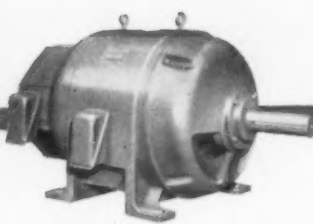
Motion control integral-shaft Vari-Pitch drive

Texrope and Vari-Pitch are Allis-Chalmers trademarks.

★ Allis-Chalmers offers a wide range of equipment; engineering help on the coordinated motor, control and drive; undivided responsibility; and on-the-spot Certified Service facilities.

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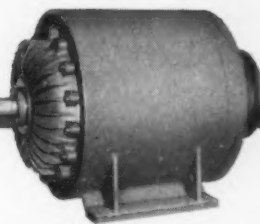
Engineering and Ordering is the only complete drive needs



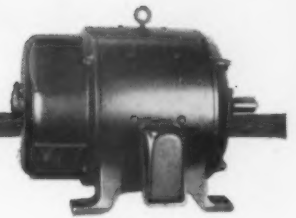
**General purpose
wound-rotor motor**



**Enclosed
wound-rotor motor**



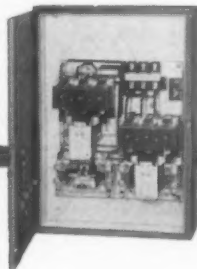
**Totally-enclosed
motor with tube-type
heat exchanger**



**Direct
current
motor**



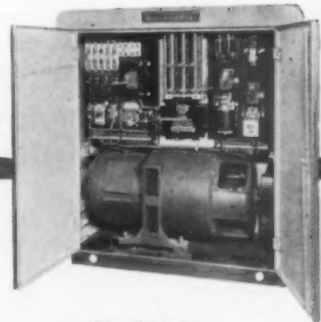
**Wound-rotor
control**



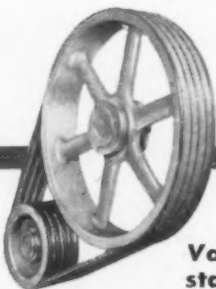
**Multi-speed
motor starter**



**Manual reduced
voltage starter**



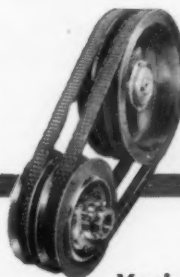
**Package
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**Vari-Pitch
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★ For help on your next motor, control and drive problem, call your nearby A-C office or distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

CHALMERS



A-4827

ideas

you can use

Fibreboard Cuts Package Weight 60%



New Meter carton is assembled by inserting built-up center-cut end piece and butting the cut-out corrugated bottom pad against it. Note octagonal cut-out to hold face of meter. Smaller section of bottom pad at right can be switched to the end piece side for larger meter.



← Compartmentized top inserts serve dual purpose. Chambers hold meter accessories. Dropped in place, inserts keep cross member from shifting.

Two-by-four cross piece, to which → a section of one inch stock has been nailed, fits over meter chamber and rests on creased inserts.



An industrial instrument, unlike laboratory type equipment, is neither delicate nor does it demand kid-glove care.

Yet anything can happen in shipping and the most rugged equipment is not immune to the hazards of rail and road. Because of this, The Foxboro Company, Foxboro, Mass., manufacturer of a complete industrial line, makes packaging study a continuous program.

The latest new package adopted by Foxboro involved the company's new Type 27 and Type 28 Flow Meters, the kinds widely used in general service and gas industry applications. The old container, a wooden box of $\frac{3}{4}$ " stock, was perfectly adequate insofar as protection against shock and stress was concerned. However, it was recognized that if lighter packaging materials could be effectively used, meter customers could realize considerable savings in freight charges.

Design, therefore, centered on fiberboard—light in weight yet utilized in such a way that the same degree of shock protection was provided. Maximum strength was essential since a meter, even without accessories, weighs 60 to 90 pounds. There was also the problem of glass breakage. A meter door consists of a metal rim enclosing a glass face plate, providing protection against dust. Finally there was the difficulty in designing a single package to ac-

(Please turn to page 134)

Use NYB&P's new "Secret Weapon" to cut your conveyor belt costs



ABOUT TO replace an old conveyor belt? Then consider the money-saving possibilities of today's most advanced belting components! Your NYB&P Distributor is uniquely equipped to help you...with this new NYB&P *Design-A-Belt* Kit. It's the most complete conveyor belt analyzer yet devised!

With its two slide calculators, he can quickly and accurately determine the total belt tension involved...and all possible belt carcass constructions capable of handling it. There may be as many as half-a-dozen possibilities. From these he can select the *most economical* carcass.

Then, using the rest of the kit, your NYB&P Distributor can assemble and leave with you, a sample section of the

belt he feels should most exactly meet your needs...at the *lowest ultimate haulage cost per ton*. As he builds up the sample step-by-step, you can examine each ply, each of the many special constructions and features available, including the various top covers designed for handling specific types of loads. In all, he could actually build with this unique kit 1,890 different samples. But only *one* is your *best buy*! You save money...not because someone skimps on quality, or because someone offers you a "bargain" price, but because you are buying *the one best belt for your application*!

The *Design-A-Belt* Kit is not on sale at any price. But you can make use of it—at no cost whatever—through your NYB&P Distributor.



V-BELTS AND "TIMING®" BELTS

NYB&P INDUSTRIAL RUBBER PRODUCTS

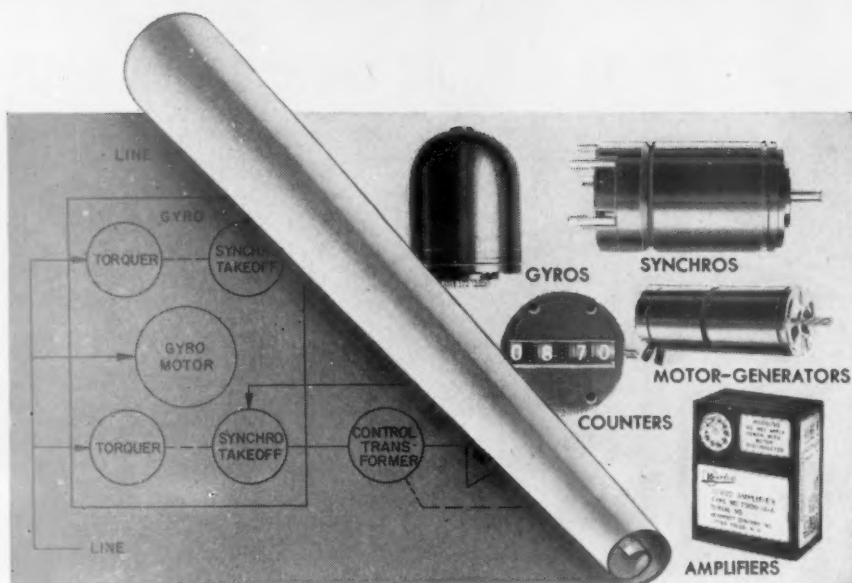


NYB&P

NEW YORK BELTING & PACKING CO. 1 Market St., Passaic, N. J.

America's Oldest Manufacturer of Industrial Rubber Products

For More Information Circle No. 215 on Inquiry Card—Page 17



KEARFOTT

... from
problem
through
production

Engineering ability and production facilities are as important to you as the characteristics of the components you select. After components are approved, you are dependent upon your supplier . . . dependent upon him for engineering assistance . . . dependent upon his ability to produce quality products in the required quantities.

Many of the servo motors, synchros, gyros and systems in use today had their inception on the drafting boards of Kearfott's engineers. This is proof of Kearfott's engineering ability. Kearfott offers complete engineering service before, during and after the purchase of a component.

Modern buildings, over 430,000 square feet of floor space, equipped with the latest in precision machinery, manned by 3,400 highly skilled specialists, are your assurance of Kearfott's ability to produce.

Yes, Kearfott is a dependable source of supply. If you have a design problem or require a special or standard component, contact Kearfott.

KEARFOTT COMPONENTS INCLUDE:

Gyros, Servo Motors, Synchros, Servo and Magnetic Amplifiers, Tachometer Generators, Hermetic Rotary Seals, Aircraft Navigational Systems, and other high accuracy mechanical, electrical and electronic components.

Send for bulletin giving data of components of interest to you.



A SUBSIDIARY OF GENERAL PRECISION EQUIPMENT CORPORATION

KEARFOTT COMPANY, INC., LITTLE FALLS, N. J.

Sales and Engineering Offices: 1378 Main Avenue, Clifton, N. J.
Midwest Office: 188 W. Randolph Street, Chicago, Ill. South Central Office: 6115 Denton Drive, Dallas, Texas
West Coast Office: 253 N. Vinado Avenue, Pasadena, Calif.

For More Information Circle No. 216 on Inquiry Card—Page 17

ideas

(Continued from page 132)
commodate different size meters. In the Types 27 and 28 there are 18 standard flow ranges. While the basic meter dimensions are approximately 20" long by 14" wide and 11" deep, the package had to be flexible enough to handle most of the variations.



Meter is placed face down in carton. Yoke end, at left, will fit snugly into cut-out area of end piece.

The container that finally satisfied these requirements is a novel combination of fiberboard and wood, 28½" long by 19" wide by 13⅝" deep (inside dimensions).

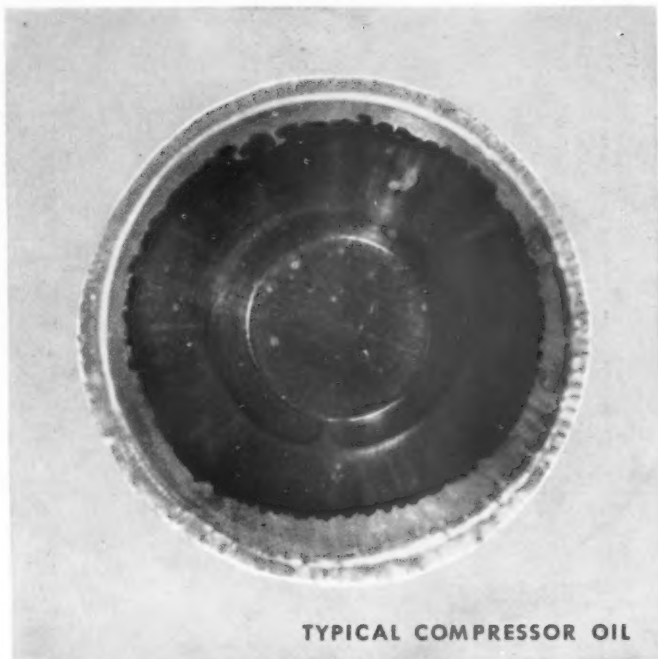
Received in knock-down form, the cartons and inserts are assembled as needed. The meter is placed in the carton face down—the meter door having first been covered with a corrugated protective cover which fits over the door, overlapping it around the rim. A layer of 25-ply Type 301 Kimpak cushioning is placed against the door to prevent surface abrasions from the fiberboard.

In the bottom of the carton is a built-up corrugated pad, die cut to accommodate the door. The heavy yoke end of the meter butts against a solid fiberboard end piece, built up and center cut to receive the mounting yoke. This end piece is in two sections for convenient insertion of the meter—the upper half fitted over the yoke, the lower half cradling it.

The bottom corrugated pad holding the face of the meter is also in two sections. The smaller section is placed on the bottom nearest the yoke end or at the opposite end, (Please turn to page 138)

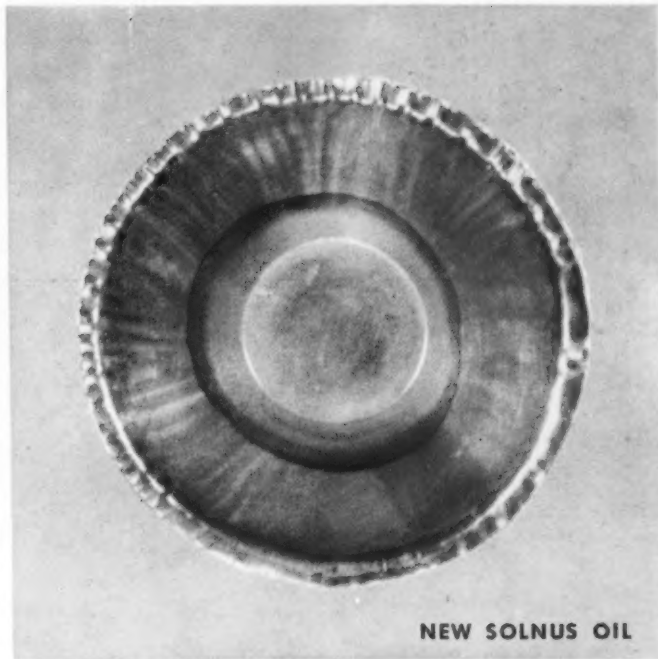
For More Information Circle No. 217
on Inquiry Card—Page 17→

PURCHASING



TYPICAL COMPRESSOR OIL

To demonstrate the comparative deposit-forming tendencies of compressor oils, two drops of a typical compressor oil were heated until evaporated. Notice



NEW SOLNUS OIL

the large deposit, *most of which is carbon*, left by the typical compressor oil. A new Solnus oil, after the same evaporation test, leaves a much smaller deposit.

NEW SOLNUS OILS HELP KEEP COMPRESSORS CARBON-FREE



THREE MINUTE TEST right at your desk shows why Solnus oils are the best for your compressors.

The chief enemy of air compressors is carbon build-up. The best way to avoid this hazard is to use the compressor oil that has the lowest carbon-forming tendency.

Sun's new Solnus oils have been proved to be ideal compressor lubricants. The minute amounts of carbon that form are fluffy and blow away easily . . .

assurance against dangerous build-up of carbon on valves and exhaust ports. Tear-downs for cleaning are kept to a minimum.

We'd like to show you, right on your desk top, the dramatic test pictured above. Ask your Sun representative about it the next time he calls or write **SUN OIL COMPANY**, Philadelphia 3, Pa., Dept. SI.

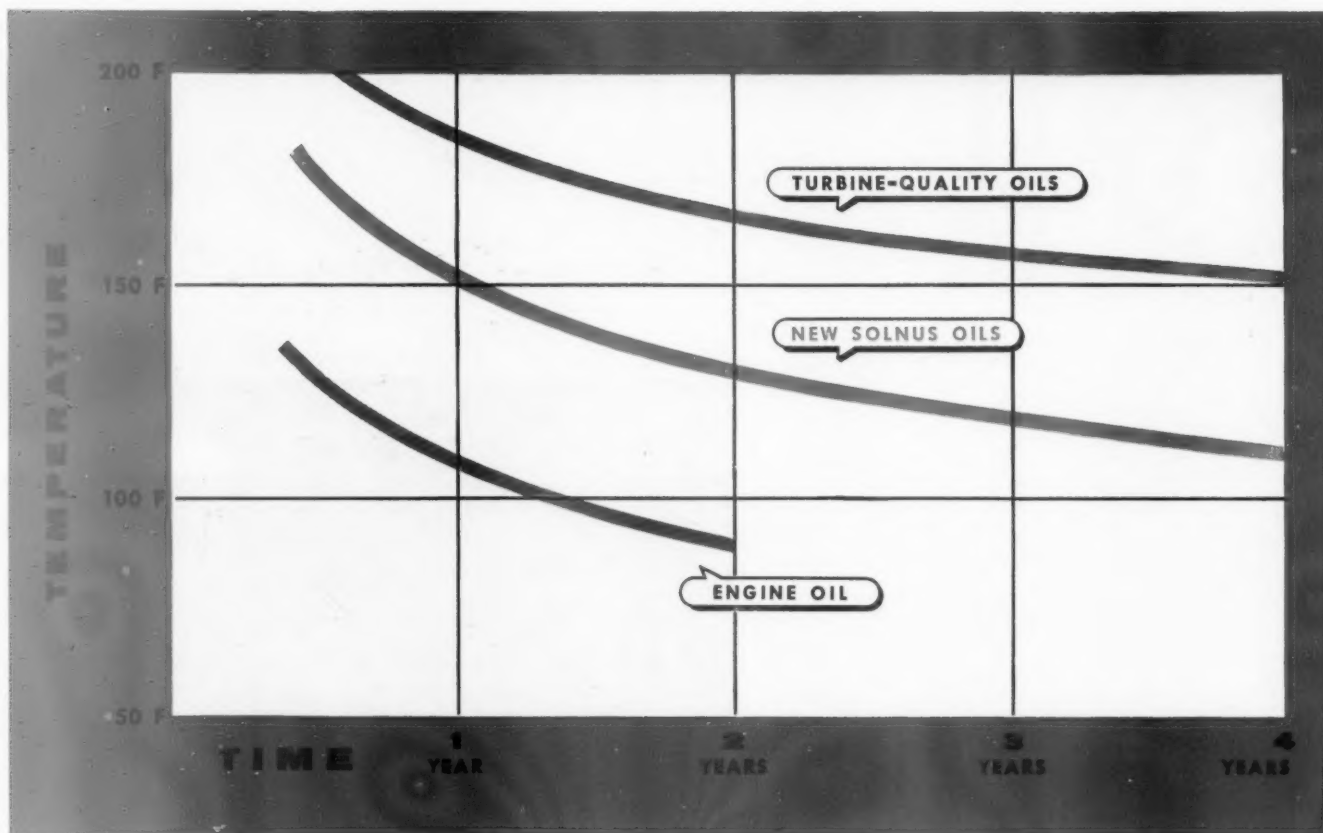
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INDUSTRIAL PRODUCTS DEPARTMENT

SUN OIL COMPANY PHILADELPHIA 3, PA.

IN CANADA: SUN OIL COMPANY, LTD., TORONTO AND MONTREAL



This graph is based on 10% make-up per year and a 40-hour week. The yellow area represents approximately 80% of all applications.

NEW SOLNUS OILS IDEAL LUBRICANTS FOR 80% OF ALL APPLICATIONS

High grade lubricants for squirt-can prices . . .
New Solnus oils give more lubrication per dollar

The lubricated parts of most machines—our estimate is 80%—operate at temperatures below 130 F and the time between oil changes is less than 2 years. New Solnus oils were specifically developed to meet these operating conditions at the lowest possible cost.

The above graph compares the service life of new Solnus oils with that of an expensive, turbine-quality oil, and an oil of the type old-timers call "engine oil". The service life of the turbine-quality oil is excellent and probably covers 99% of all applications . . . but for a premium price! The engine oil has a very limited life. It cannot be used

safely, except for a very short time, at even moderately high operating temperatures, and it gives very little protection against rust and corrosion.

Now look at the service life of new Solnus oils. They easily meet the service requirements of at least 80% of all oil lubrication jobs and they sell for a squirt-can price! In addition, new Solnus oils are fortified to prevent both rust and oxidation . . . a feature usually found only in more expensive oils.

For the full story on new Solnus oils, see your Sun representative or write Sun Oil Company, Philadelphia 3, Pa., Dept. SI.



INDUSTRIAL PRODUCTS DEPARTMENT
SUN OIL COMPANY

PHILADELPHIA 3, PA.

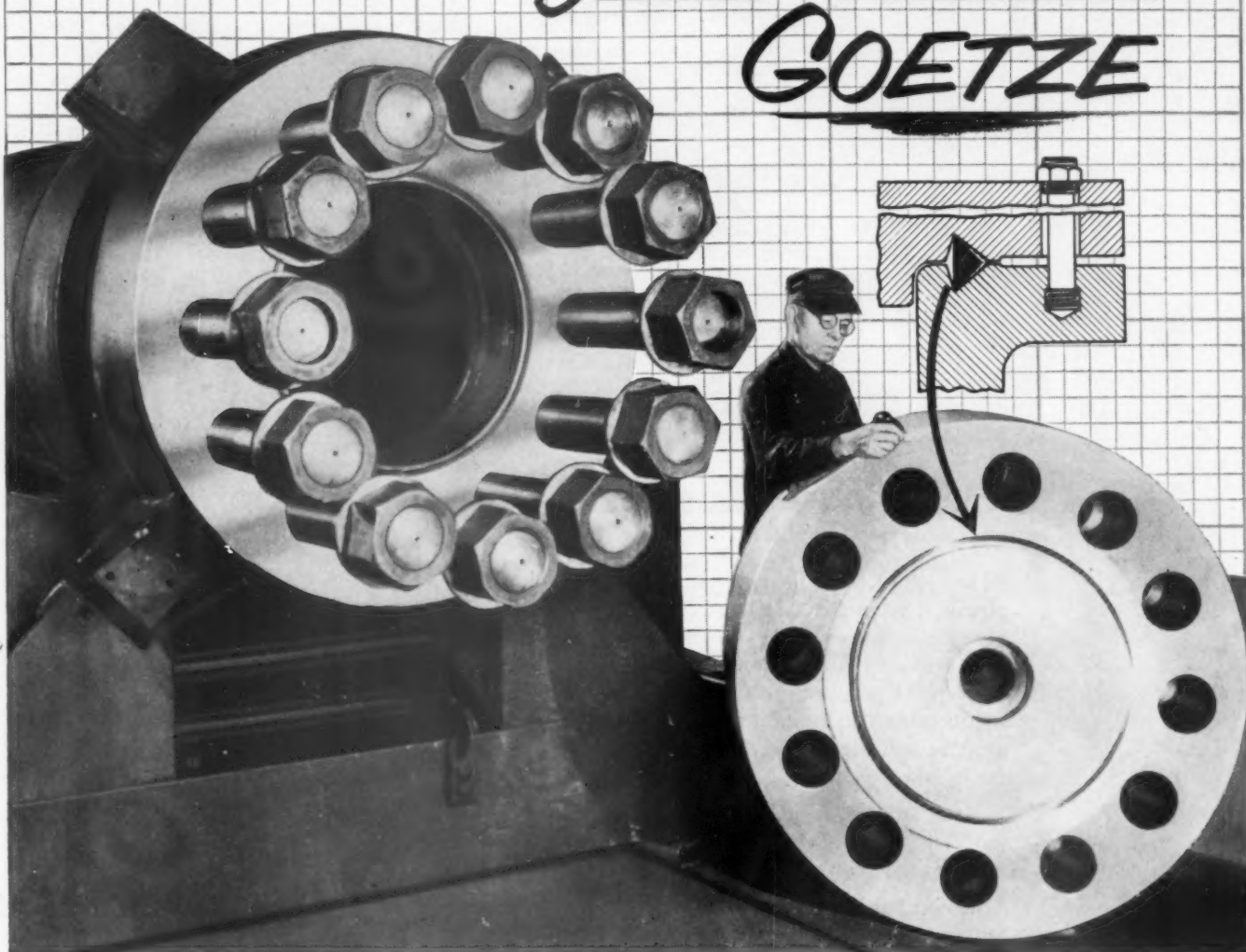
In Canada: Sun Oil Company, Ltd., Toronto and Montreal

PRESSURE: 15,000 PSI

TEMPERATURE: 450 F

GASKET:

Johns-Manville
GOETZE



**How A. O. Smith maintains
tight seals in giant
"Multi-Layer" vessels**

Today's tremendous pressures and temperatures have placed special demands on manufacturers of processing equipment. A. O. Smith has answered this need with a special type of "Multi-Layer" vessel construction. And Johns-Manville in turn has provided gaskets that assure tight seals under these exacting conditions. Typical of these is the delta type gasket,

illustrated above, which was designed, for this application, to withstand pressures up to 15,000 psi. and temperatures to 500 F.

The development of special gaskets to meet special purposes has been the stock in trade of Johns-Manville's Goetze division for more than sixty-five years. Expert technicians possess a knowledge of metals and other factors related to gasket design and performance that is unmatched in the field. What's more, intensive specialization and modern production tooling

provide substantial cost savings on J-M gaskets.

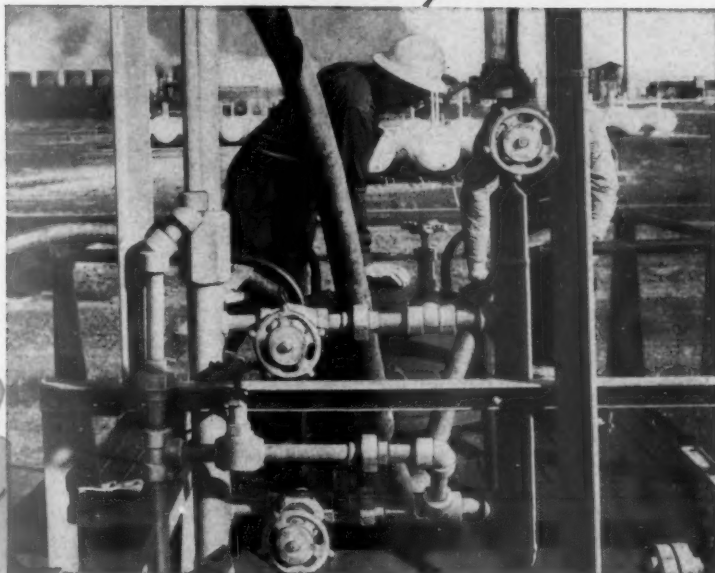
If you need gaskets for high pressure vessels for similar applications, send us a drawing or template for quotation. If you have a sealing problem of any kind, J-M technicians will work directly with your own engineers to develop new gaskets—or adapt existing styles—to meet your specific requirements. Write for further information to Johns-Manville, Box 60, New York 16, N. Y. In Canada, Port Credit (Toronto), Ontario.



Johns-Manville PACKINGS & GASKETS

WATSON-STILLMAN

FORGED STEEL FITTINGS



WORK BEST...under pressure



■ In high pressure steam lines...process liquid and gas piping...hydraulic fluid lines...wherever strong, tough pipe joints are needed, Watson Stillman Forged Steel Fittings provide a safety factor against costly piping failures. They resist pressure, heat, corrosion, shock and vibration because they're drop-forged of high quality steel to produce a dense, tough, forged-fiber structure that can really take it.

Extra strength is built into W-S fittings in other ways too...such as the heavy reinforcing bands extending well beyond the threads or sockets.

Protect your high pressure piping system with Watson Stillman Forged Steel Fittings. Available in carbon, stainless and alloy steels, in Screw-End and Socket-Welding Types to meet your service requirements. Send today for Free Catalogs.

Bulletin A3-50—Forged Steel Fittings
Bulletin S-1-55—Stainless and Alloy Fittings
Bulletin U-1—Forged Steel Unions
Bulletin S-3-55—150 lb. Stainless Fittings

Sold Through Leading Distributors



WATSON-STILLMAN FITTINGS DIVISION



H. K. PORTER COMPANY, INC.
Roselle, New Jersey

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ideas

(Continued from page 134)
depending on the length of the meter to be shipped.

Creased inserts are placed on both sides of the meter to form a base for the two top pieces. These in turn help to hold the wooden cross member from lateral shifting. The wooden piece consists of a 2" x 4" section curved to fit and hold the meter chamber. Nailed to the 2" x 4" is a piece of 1" stock which prevents the meter from moving lengthwise.

The two top insert pieces are creased to form compartments containing the accessories that are shipped with the meter.



Only two steel straps are needed—lengthwise at the meter yoke and crosswise at the wooden insert.


A solid fiberboard piece fits over the top inserts and the wooden cross piece, providing a firm base for stapling the top flaps to close the pack. Steel strapping, $\frac{5}{8}$ " wide by .020" thick, secures the package lengthwise at the meter yoke and crosswise at the wooden insert.

The new package is approximately 36 pounds lighter, resulting in considerable savings to the customer in shipping charges. Additionally, the shipping department saves 10 to 15 minutes per unit in packaging time and 50% in storage space allotted to meter packaging materials.

While important, improved handling is secondary to the main objective of the corrugated design. The meter is still fully protected in transit, but package weight has been cut 60%. Throughout six months of general use, not a single report of meter damage has been received.

For More Information Circle No. 220
on Inquiry Card—Page 17→

PURCHASING



How do you choose the best electrode buy from these look-alikes?

Most electrodes *look* alike. But there's a vast difference in quality—and an even greater difference in the services you receive as part of your electrode purchase. If you are paying extra for these services, then *you may be paying too much for your electrodes.*

With every purchase of G-E electrodes, you get four important services—at no extra cost: (1) Expert application aid; (2) Trouble-shooting service; (3) Sample electrodes to help your company choose the least expensive electrode for the job; (4) Prepaid shipments.

Electrode quality? Within any electrode class, G.E.'s balanced-design electrodes give you a tested balance of (1) ease of use (2) welding speed (3) X-ray quality—for best over-all results.

To take advantage of these cost-saving features, call your nearby G-E Welding Distributor. He's listed in the yellow pages of your phone book.

Free G-E electrode comparator helps you match 20 electrode brands with proper industry classification. G.E.'s line of electrodes, the most complete in industry, enables even the smallest electrode user (500 lbs an order) to obtain quantity discounts by consolidating orders. Write Section 715-3, General Electric Co., Schenectady 5, N. Y.



GENERAL  ELECTRIC



Dilecto® LAMINATED PLASTICS

combine electrical
and mechanical
properties for
every application

C-D-F Dilecto is an industrial laminated plastic with great mechanical strength and high in electrical insulating properties. It is a uniform, almost homogeneous material of the highest quality and has been proven in thousands of tests and difficult applications.

Dilecto is made from a base of either cellulose or asbestos paper, cotton fabric, cotton mat, woven asbestos fabric, woven glass cloth, glass mat, woven nylon fabric, etc. Depending on the electrical, mechanical and machining requirements, phe-

nolic, melamine, silicone, polyester, epoxy or tetrafluoroethylene (TEFLON®) resins are used. Upon lamination under careful temperature, pressure and time control, a new material is formed . . . C-D-F Dilecto . . . with unique strengths and advantages.

Dilecto is made in many grades, sold in the form of sheets, tubes, rods, and fabricated parts. C-D-F gives fast service on raw stock orders, has complete fabricating facilities. Call your C-D-F sales engineer for purchasing and technical help.

*Du Pont trademark

Write for new C-D-F Dilecto Catalog



Continental-Diamond Fibre

For More Information Circle No. 221 on Inquiry Card—Page 17

C-D-F MICABOND® INSULATION

assures
better
motors



You can build better motors, get more insulation value from genuine Micabond mica products, made by C-D-F . . . a major supplier of built-up or bonded mica to America's largest manufacturers of motors and generators. Only the finest mica splittings are used in Micabond, resulting in uniform high heat resistance and dielectric strength. C-D-F Micabond is sold in these forms: Sheets • Flexible Tapes including cotton, silk,

paper, fiberglass and Mylar® backings • Segments • Tubing • "V" Rings • Slot Liners • Washers • Punchings.

If you need a new source for mica products, the C-D-F Valparaiso, Ind. plant can be the answer. Making exactly what is wanted, with fast deliveries, low fabricating costs and top quality is part of every order. Samples of Micabond materials, technical aid are yours for the asking.

*Du Pont trademark

Write for C-D-F Micabond Catalog!



CONTINENTAL-DIAMOND FIBRE

For More Information Circle No. 222 on Inquiry Card—Page 17

ONE-SOURCE BUYING SIMPLIFIES PURCHASING, AIDS DESIGNING, SPEEDS PRODUCTION

Continental-Diamond Fibre, one of the country's largest manufacturers and fabricators of electrical insulation and plastics, recently summarized for purchasing agents the advantages of their "One Source Buying Plan". No other supplier, says C-D-F, can offer as wide and varied a range of products and services. Buying from C-D-F results in substantial savings of the buyer's time. One call to a nearby technically qualified sales engineer puts the purchasing agent in touch with a well-integrated company, with four modern plants and fabricating facilities. C-D-F in the post-war years has been through a considerable expansion and modernization program. Lower competitive prices and faster service have resulted.

According to a recent poll taken by PURCHASING magazine, buyers spend 20 to 50% of their time talking to salesmen. Shorter, fewer interviews with the man from C-D-F mean more time for sharpening buying practices, effecting cost reductions, doing a better, productive job.

C-D-F salesmen, with a wide range of products, have a broad picture of current production and cost problems. They cover more plants in more industries and accumulate the background needed to apply the material to the insulating problem. Also, the C-D-F technical staff is available for projects requiring special design, test, and quality control service.

Many New Materials Added

Among the new products made by C-D-F is a complete line of flexible insulation and tapes of tetrafluoroethylene (TEFLON®), Mylar®, mica, silicone rubber, varnished fiberglass and fiberglass mica combinations. Improvements in resins and manufacturing techniques have in the past two years drastically changed the Dilecto laminated plastic line. Mechanical strength has been increased. Laminates have been made more homogeneous to raise machinability and cut scrap loss. Melamine, tetrafluoroethylene (TEFLON), silicone glass-based laminates. Post-forming and fire-resistant grades. Metal clad laminates for printed circuits. Polyester glass laminates and molded parts. All are new additions to C-D-F's growing list of industrial plastics.

*Du Pont trademark

Trend Toward One Source Service

Analysis of cost records by C-D-F shows the desirability of offering one source service. Billing is simplified. Technical information can be obtained faster and with greater accuracy. The C-D-F salesman is able to expedite for the purchaser. Group buying of raw materials and fabricated parts means fewer delays, a better inventory situation, closer control. Instead of a possible twenty salesmen (yes, one call to C-D-F can save you that much), the purchasing agent who uses C-D-F's "One Source" Buying Plan accomplishes the aim of progressive purchasing — Simplification. Improved Products at Lower Cost. A Big, Reliable Source of Supply!

THERE'S A C-D-F SALES OFFICE NEAR YOU

BALTIMORE 14, MD. 3019 Oak Forest Drive BIRMINGHAM 1, ALA. American Life Building BOSTON SALES OFFICE 1245 Hancock St., Quincy 69, Mass. BUFFALO 3, N. Y. Ellicott Square Building CHICAGO 11, ILL. 1201 Palmolive Building CLEVELAND 14, OHIO 550 Leader Building DAYTON 2, OHIO 221 Third National Building DENVER 2, COLO. Ernst & Cranmer Building DETROIT 2, MICH. 201 Officer FT. WORTH 7, TEXAS 3414 Camp Bowie HARTFORD SALES OFFICE Hartford-Jackson 9-0397 15 Harding St., Wethersfield 9, Conn. HOUSTON 4, TEXAS 3514 Crawford Street INDIANAPOLIS 5, IND. 709 E. 38th Street MILWAUKEE 2, WIS. 828 N. Broadway MINNEAPOLIS 2, MINN. 610 Plymouth Bldg.	NORTHfield 5-0964 3-6131 Granite 2-2150 Washington 3929 DElaware 7-6266 Cherry 1-5220 Adams 4291 AComa 2-2236 BRoadway 3-0447 Fannin 3339	NEW YORK 17 290 Madison Avenue, Room 501 OMAHA 2, NEBR. 110 North 40th Street PHILADELPHIA DISTRICT SALES OFFICE Bridgeport, Pa. PHOENIX, ARIZONA P. O. Box 1587 PITTSBURGH 21, PA. 309 Shields Bldg. RICHMOND 22, VA. 101 Oranoco Avenue ST. LOUIS 17, MO. 2683 Big Bend Blvd. SPARTANBURG, S. C. 834 Hayne St. TULSA, OKLA. 204 S. Cheyenne St. Pacific Coast Representatives MARWOOD LIMITED SAN FRANCISCO 3, CAL. 357 Ninth Street SEATTLE 4, WASH. 1714 First Avenue, South PORTLAND 4, ORE. 209 S.W. First Avenue LOS ANGELES 13, CAL. 320 East 3rd Street Canadian Representative DIAMOND STATE FIBRE CO. OF CANADA LTD. 46 Hollinger Rd., Toronto 13, Ontario, Can.	Murray Hill 6-0870 Atlantic 6548 Norristown 5-0800 Alpine 8-7893 Churchhill 1-0969 Richmond 32210 Mission 5-2253 Spartanburg 3-6397 5-6189 Hemlock 1-7893 Elliot 4747 Beacon 5123 Mutual 3241 U. S. A.
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EXPORT DEPARTMENT: BRIDGEPORT, PENNSYLVANIA, U. S. A.

AL-DIAMOND FIBRE THE BUDD COMPANY, INC. NEWARK, DELAWARE



BEAT high heats with C-D-F products of TEFLON*

based types. Tapes withstand 500°F., have practically zero water absorption.

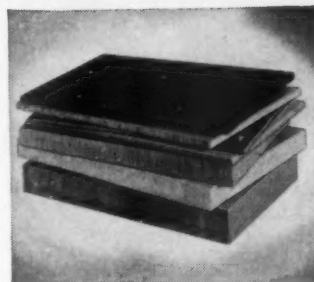
NEW C-D-F LAMINATES using tetrafluoroethylene resin and fiber-glass cloth give outstanding resistance to high heat with extremely low and stable dielectric losses. When METAL CLAD, the Teflon laminates are used in printed circuits for high voltage, high frequency applications.

MAKE C-D-F YOUR SOURCE FOR TEFLON, get engineering advice, save time and money by buying from this big, reliable source of supply!

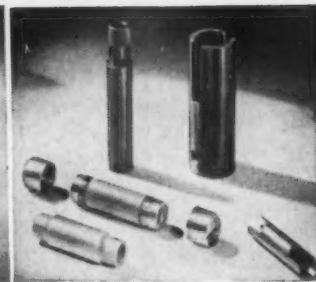
*Du Pont trademark

Tetrafluoroethylene (TEFLON*), an exceptional resin, is transformed by C-D-F into insulating tapes, sheets, laminates, metal clad stock for printed circuits, packings, specialties. These products withstand high temperatures, have exceptional electrical properties, resist chemical attack. They can give new answers to once-difficult material selection problems.

C-D-F TAPES of tetrafluoroethylene include unsupported and glass-



SHEETS



TUBES

C-D-F GIVES FAST, LOW-COST SERVICE ON ANY FORM, SIZE, OR SHAPE OF DIAMOND® VULCANIZED FIBRE

Diamond Fibre is a genuine vulcanized fibre with good electrical insulating qualities and great mechanical adaptability. It is arc-resistant and non-corroding. It forms readily and is often used where high strength, toughness, and low cost must be combined.

C-D-F sells Diamond Fibre in sheets, rolls, strips, rods, tubes,

formed and machined specialties. Special grades include fibre for forming, tags, abrasive, bobbin, pattern, shuttle applications. Diamond Insulation (fish paper) and Built-Up Fibre are in the line. C-D-F also has a complete fabricating service for fibre receptacles, trucks, trays, cans and barrels.

Write for new 1955 Diamond Fibre Catalog.



CONTINENTAL-DIAMOND FIBRE

For more information Circle No. 223 on Inquiry Card—Page 17



CONTINENTAL-DIAMOND FIBRE

For More Information Circle No. 224 on Inquiry Card—Page 17

Lower costs, faster deliveries of fabricated plastics parts when C-D-F does the whole job

Should an outside fabricator handle the machining of laminated plastic sheets, tubes and rods . . . or should the manufacturer take on the job himself? Naturally, much depends on the size, quantity and order frequency of the part required. As a rule, extremely small screw-machine plastic parts can best be bought from a fabricator who has accumulated the required special knowledge of the machining techniques involved.

C-D-F, an experienced fabricator with years of experience, has found that many small orders require an abnormal amount of skill to make. By the time you can experiment, test, and possibly reject much expensive material, the job could be completed and shipped by C-D-F.

result in lower prices for the purchaser.

All in the C-D-F Family

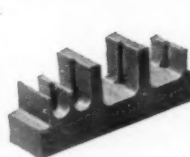
A visit to C-D-F's shops at Newark, Del., or at Valparaiso, Indiana, illustrates the time and money savings made possible by placing your "parts" eggs in one basket. Modern fabricating shops are next to the presses and the machines making the Dilecto laminated plastics. Selection and handling of materials is fast. The job is in the C-D-F family . . . becomes a locked-down responsibility as to quality and delivery. Opinions, suggestions flow fast and free between the C-D-F team of sales, manufacturing and technical men. No time is lost in deciding what to do when a problem arises.

If you buy Dilecto (or any laminated plastic) in sheet, tube and rod form, and require the following machining operations:

turning • drilling • tap and thread • punching • shearing • sawing • milling • planing • forming and post-forming • molding • finishing • masking • lettering • engraving • metal cladding • combining with other materials (rubber, fibre, etc.)

It will pay to call on C-D-F. The economy of C-D-F's one source buying plan (see opposite page) can also be added to the speed and service of C-D-F's excellent fabrication facilities.

c-d-f Celoron® MOLDED PLASTICS



COMBINE HIGH STRENGTH, DURABILITY, LOW COST

If you buy gears, couplings, insulators, molded plastics of almost every type — get the facts about C-D-F Celoron, a molded-macerated and/or laminated paper or cotton-based material, bonded with phenolic resins. Celoron is strong enough for automotive timing gears . . . and C-D-F has years of molding experience!

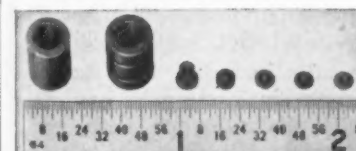
From Celoron SHEETS you

can cut industrial gears to put silence in machinery. Or, C-D-F can MOLD CELORON to your specification at low cost. Small parts, insulating or mechanical supports can be made from Celoron. Call the C-D-F sales engineer. Get samples of Celoron. Write for Celoron catalog with horsepower ratings for gear cutting.



Continental-Diamond Fibre

NEWARK 41, DELAWARE



C-D-F's small parts machining and inspection gets results like this. These automotive electrical insulators are mass-produced, with uniform quality at rock-bottom prices.

The handling of thousands of set-ups for high speed, low cost production runs gives C-D-F an "experience bank" to draw from. C-D-F shop supervisors and personnel have a wealth of short-cuts, special adaptations, little tricks that

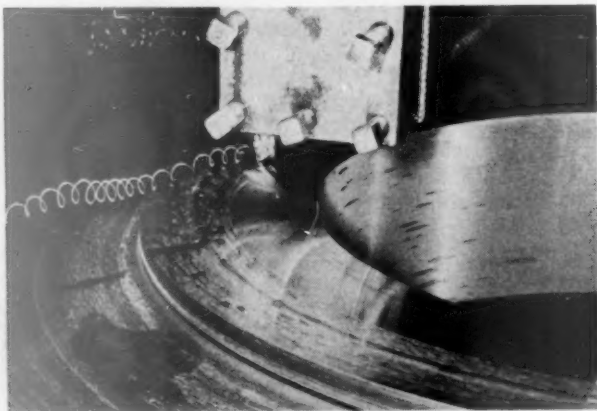
new products

and cost-saving ideas

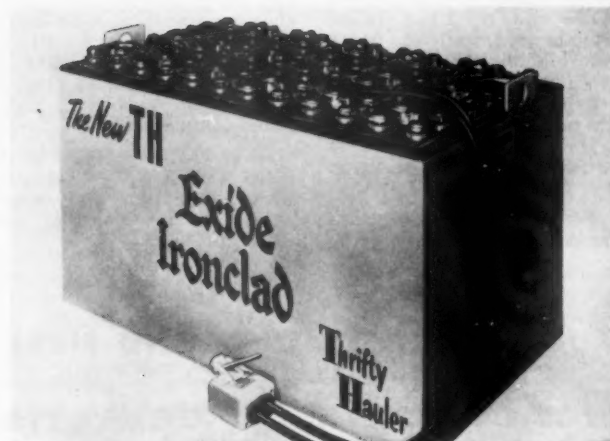
Cemented Oxide Tools for Faster Machining

A cemented oxide material—so called to distinguish it from typical ceramics—has been developed specifically as a cutting tool material and for wear applications. Currently used with mechanical holders, tips of the new material not only will machine materials such as 1045 and softer steels but also 4340 type and nickel-chrome-moly steels with Brinell hardness up to 300. Wear resistance of the new material is such that on some tests it indicated a tool life of considerably more than 25 to 1 over conventional carbides.

Although no coolant is required, the material may be used with coolants if heat deformation of the work is a factor. The tool material does not heat up, and is generally cool to the touch following a machining operation. Present experience with tool tips of cemented oxide shows that they can be wet ground successfully with 220-grit diamond wheels. Use of finer diamond wheels is possible but longer grinding time is required. Laboratory tests using the material on AISI 1045 steel, generally used by industry, indicated that finishing cuts were taken at 1800 to 2000 sfpm. Tool life of about 25 minutes was obtained at 2000 sfpm with depths of cuts of 0.010" and feeds of 0.005". Material is made by Carboly Dept., General Electric Co., Detroit 32, Mich.



Circle No. 37 on Inquiry Card—Page 17



Polyethylene Increases Battery Life

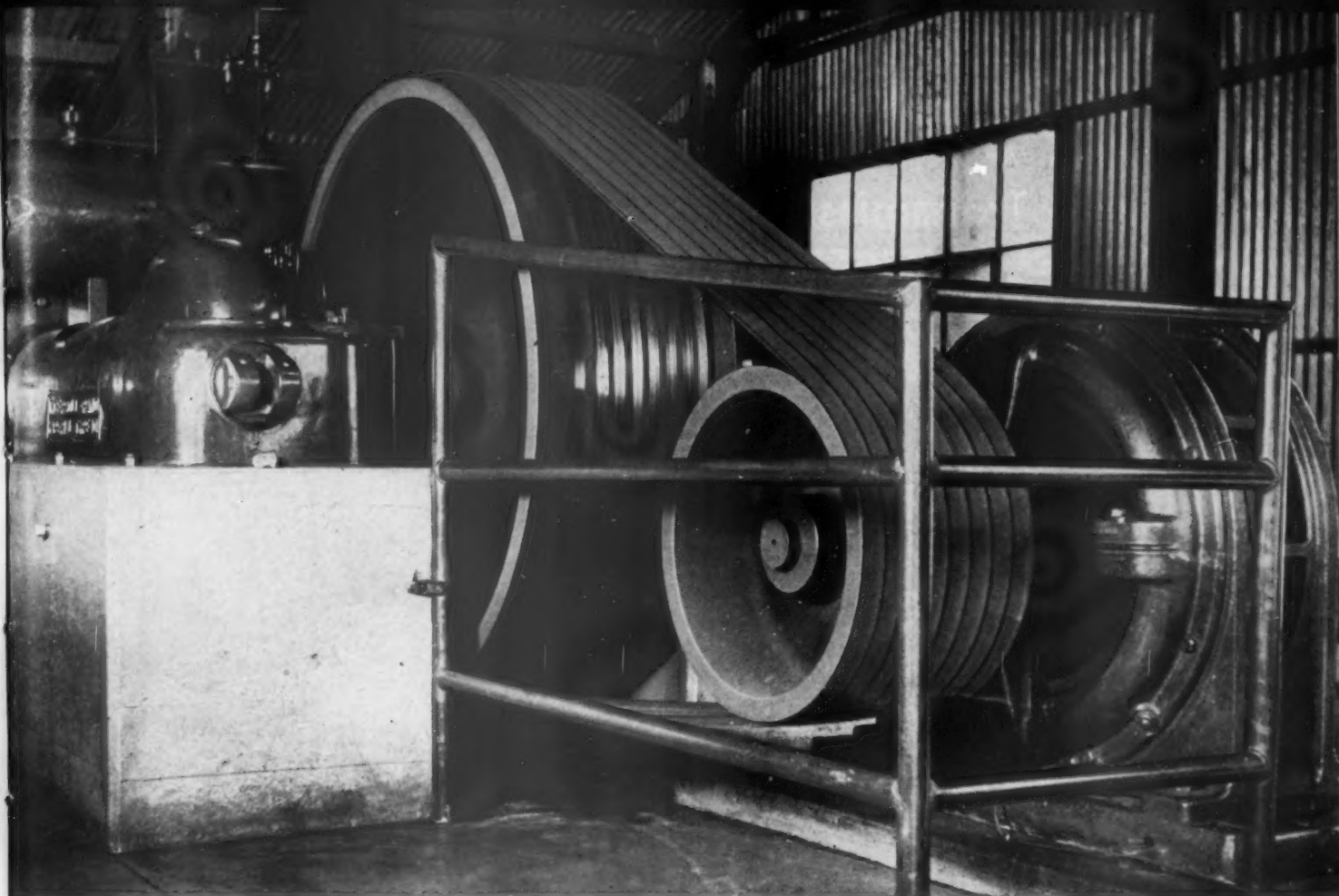
Industrial storage batteries manufactured by the Exide Industrial Division of The Electric Storage Battery Co., Box 8109, Philadelphia 1, Pa., have now up to 20% more working life and will have almost full rated capacity after five years or more of service. This is because tubing and tube sealers which encase the active material and grid spines of the positive plates of the Exide-Ironclad industrial batteries will now be made exclusively of the versatile plastic, polyethylene, instead of rubber.

Tests made on batteries using polyethylene for the exclusive slotted tube plate design showed and expected increase of up to 20% in battery working life. In severe electric truck use, they were shown to be capable of almost full rated capacity after five or more years. In other rugged breakdown service life tests, it was found that polyethylene tube cells were able to deliver 80% to 82% of capacity when rubber tube cells had only 37% to 42% of capacity and competitive flat plate cells had only 3% to 12% of capacity. Polyethylene withstands better than other materials a wide range of working conditions within a battery, the slots retain their original dimensions and its elasticity is ideal.

Circle No. 38 on Inquiry Card—Page 17

For More Information Circle No. 226
on Inquiry Card—Page 17→

PURCHASING



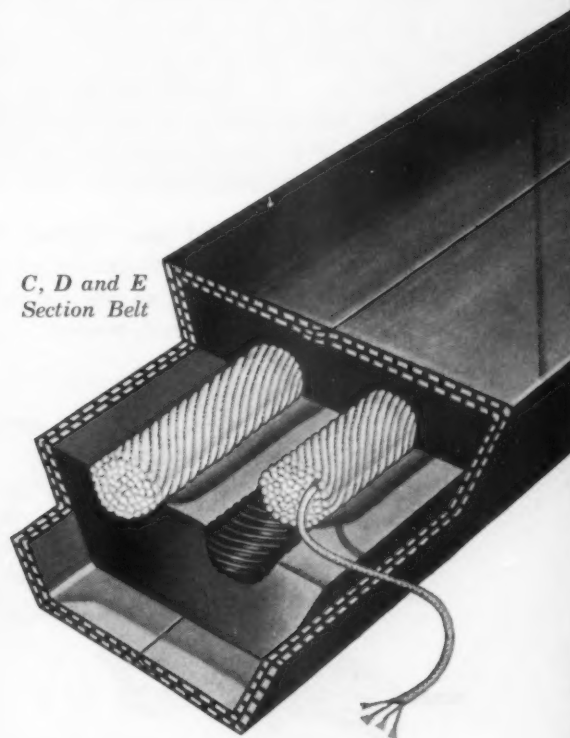
Thermoid Multi-V Belts cut operating costs



There's a Thermoid V-Belt for every plant application. Every belt is *pre-stretched* to provide longer service and maximum power transmission without slippage. Thermoid C, D and E sections are rayon-grommeted for brute strength and extra flexibility that withstands repeated shock loads. The entire belt is vulcanized into a solid unit that resists moisture, abrasion, internal friction and heat.

Get longer wear with less maintenance . . . cut your operating costs with Thermoid Multi-V Belts. To meet the exacting requirements of any plant service, your Thermoid Distributor carries a complete line of Thermoid Multi-V Belts, Hose and Conveyor Belting. Call him or write direct for complete information.

C, D and E
Section Belt



Thermoid

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

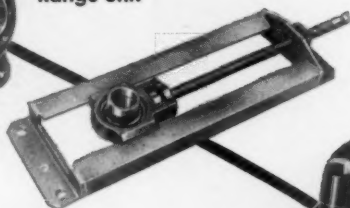
Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

Be Sure of your Power Transmission Equipment



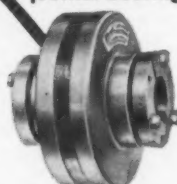
no. 201 Life-Lube
flange unit



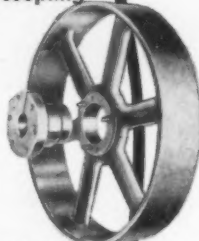
take up unit — style "I"



split journal bearing



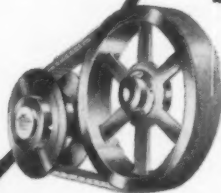
"sure-grip"
flexible coupling



"sure-grip"
pulleys



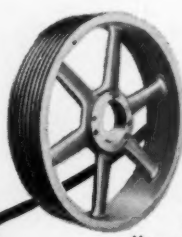
timing
belt



variable speed
drive



no. 200 Life-Lube pillow block



"sure-grip" sheaves



T. B. WOOD'S SONS CO.

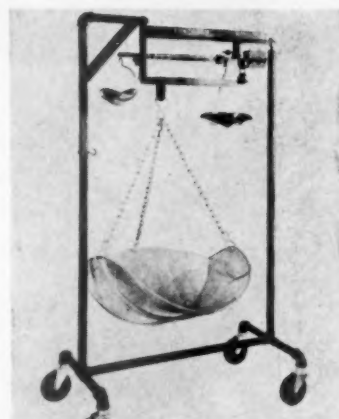
CHAMBERSBURG, PA.

CAMBRIDGE, MASS. • NEWARK, N. J. • DALLAS, TEXAS • CLEVELAND, OHIO

For More Information Circle No. 227 on Inquiry Card—Page 17

new
products

Counting Scale Fits In Narrow Aisles



John Chatillon & Sons, 85 Cliff St., New York 38, N. Y. markets the Model No. 1208 portable counting scale. It is designed to fit between narrow stock bin aisles for countings right at the bin. Capacity is 150 lbs. and ratios are 9:1 and 99:1 or 10:1 and 100:1. The beam can be locked while the scale is being moved to protect bearings and pivots. The bearings are self-aligning and a tare poise serves as a fast tare adjustment or as weighing poise.

Circle No. 39 on Inquiry Card—Page 17

Portable Saw Cuts Problem Materials

A high-speed steel blade for a portable electric band saw now makes it possible to cut most tough metals such as stainless steel, carbon tool steel, nickel and high speed tool steel. The blade permits the portable saw to cut virtually 100% of all metal materials being sawed today. Although this portable band saw is scarcely larger than a hand hack saw, it is 15 times faster and makes a cleaner, more accurate cut. It has proved to be a valuable and time-saving supplement to stationary equipment. The great cutting power of the small saw is due to the fact that the $\frac{1}{2}$ hp motor turns over 9 times for every revolution of the drive pulley. It is a product of Porter-Cable Machine Co., 59 Exchange St., Syracuse 8, N. Y.

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For More Information Circle No. 228
on Inquiry Card—Page 17→

PURCHASING

Remember the trademarks "tt" and "TUBE-TURN" are applicable only to products of TUBE TURNS.



How to get more for your dollar in stainless steel fittings!

When you specify TUBE-TURN* Welding Fittings and Flanges . . . regardless of type, size or material . . . you can be *sure* you are getting *top value*. Manufacturing improvements which we are constantly making assure not only unsurpassed quality, but economies which are passed on to you.

In TUBE-TURN Stainless Steel Welding Fittings, for example:

Recent advancements in our production techniques have netted important savings, resulting in price reductions. Are you taking advantage of these savings . . . plus the extra values described on the next page?

TUBE-TURN Welding Fittings and Flanges are made in U.S.A.
They meet all U.S. piping code specifications.

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A Division of National Cylinder Gas Company

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Los Angeles • San Francisco • Seattle • Atlanta • Tulsa • Houston • Dallas • Midland, Texas

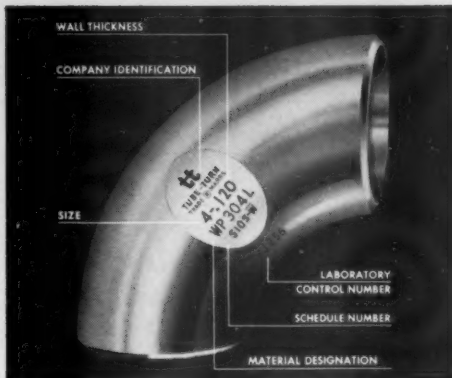


*"TUBE-TURN" and "tt"
Reg. U. S. Pat. Off.

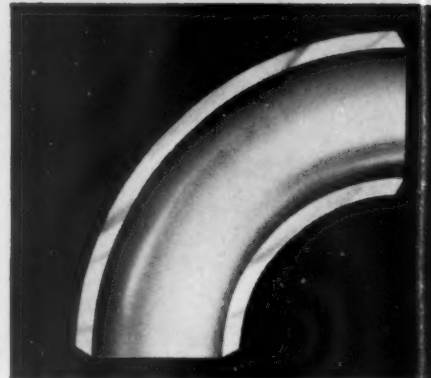
EXTRA VALUES



MATCH PIPE for calculated bursting strength.



LONG-LASTING IDENTIFICATION. Lectro-etch markings give complete, permanent information. Fittings have bright, attractive finish.



UNIFORM WALL THICKNESS. Pipe minimum wall thickness tolerance of 87½% of nominal thickness is maintained.

TUBE-TURN*

Stainless Steel

Welding Fittings and Flanges

offer you
these extra values



MEET ALL CODES: ASTM A312 (for material); MSS SP43 and ASA B16.9 (for dimensions); MSS SP25 (marking procedure).



COMPLETE LINE IN STOCK . . . four analyses: Type 304, 304L, 347 and 316. Four wall thicknesses: Schedules 5S, 10S, 40S, 80S.

WALL CHART

of dimensions of popular sizes of TUBE-TURN
Stainless Steel Welding Fittings and Flanges.

TUBE TURNS, Dept. R-6
224 East Broadway, Louisville 1, Kentucky
Please send me chart TT 730.

Company Name _____

Company Address _____

City _____ Zone _____ State _____

Your Name _____

Position _____



Available from your nearby
TUBE TURNS' distributor



*"TUBE-TURN" and "TT" Reg. U. S. Pat. Off.

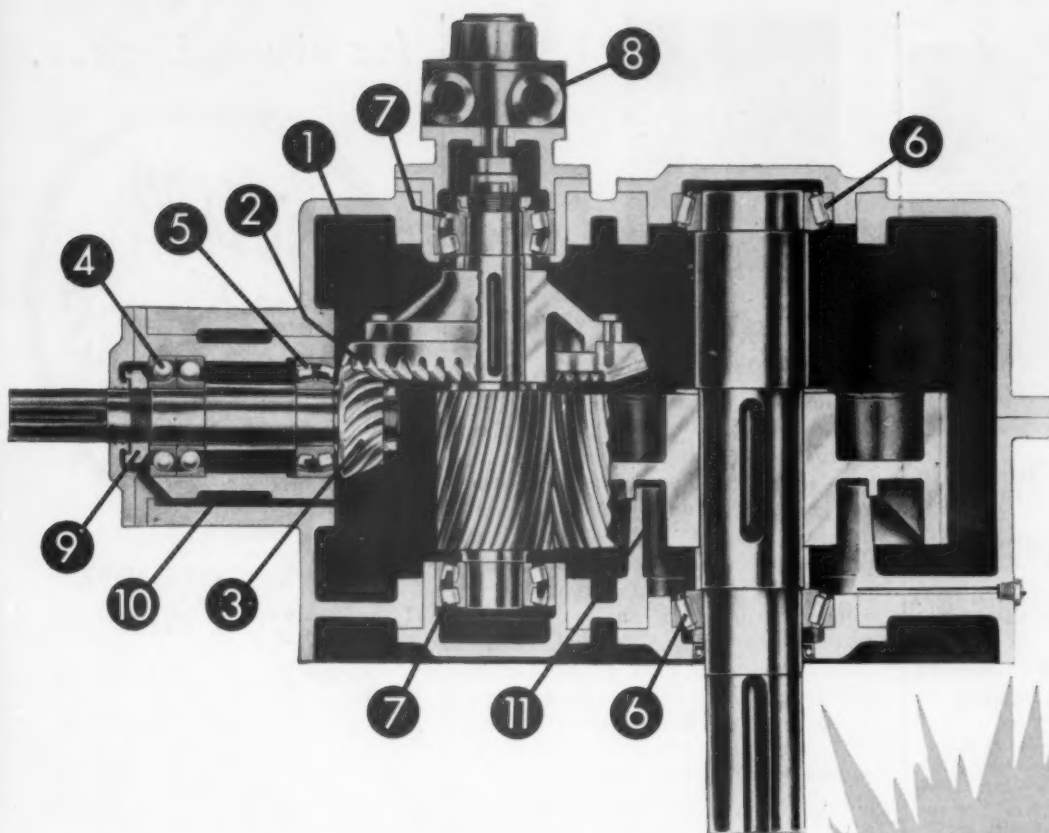
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Philadelphia	Kansas City	Atlanta
Pittsburgh	Denver	Tulsa
Cleveland	Los Angeles	Houston
Chicago	San Francisco	Dallas
	Midland, Texas	

TUBE TURNS

A DIVISION OF NATIONAL CYLINDER GAS COMPANY

LOUISVILLE 1, KENTUCKY



Sectional view of a Double Vertical Type Philadelphia Spiral-Bevel Speed Reduction Unit.

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These units offer a compact, dependable and highly efficient means of transmitting power at right angles. They are available for Vertical (shaft-up, or shaft-down) or Horizontal Mounting; in single, double or triple reductions . . . Reduction Ratios range from 1.5 to 1 up to 238 to 1.

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require no separate cooling system, and as can readily be seen, they are very accurately and ruggedly built . . . Thousands are in use throughout industry, driving vital equipment day and night, year-in and year-out.

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BALTIMORE • CLEVELAND
Virginia Gear & Machine Corp. • Lynchburg, Va.



Industrial Gears & Speed Reducers

LimiTorque Valve Controls
Established 1892



"Mechanized mail tying is needed to keep pace with other fast office machines,"

says Allen Grawoig, Vice President, CONTINENTAL PRODUCTS, Chicago

"Mechanical mail tying is just as necessary in today's modern office as other high-speed office machinery," claims Mr. Allen Grawoig, vice president of this leading wholesale mail order firm. Continental's mailing room uses mechanical mail openers, folders, postage meters and Bunn Package Tying Machines.

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In 1½ seconds, or less, the bundle of mail is tied with a slip-proof knot, approved by postmasters everywhere. Adjustment to any size envelope or bundle is automatic . . . the tension is uniform and always correct . . . and just the right amount of twine is used every time.

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Company _____

Address _____

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For More Information Circle No. 230
on Inquiry Card—Page 17

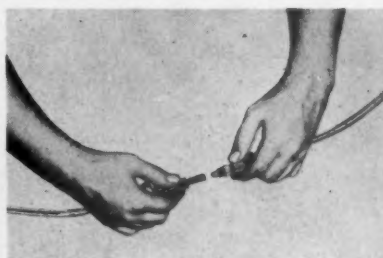
new
products

Phosphor Bronzes with Superior Properties

The American Brass Co., 23 Broadway, New York 4, N. Y., is producing phosphor bronze alloys in strip and wire form which have a fine grain size and other superior physical properties. These bronzes are trade named "Duraflex." The most important difference between Duraflex bronzes and regular bronze is in the final anneal. Phosphor bronze can only be identified as Duraflex if the final anneal produces a grain size not greater than 0.012 mm. It must also have a smooth surface, free from scratches and other defects. Duraflex bronze also has greater fatigue resistance and increased formability.

Circle No. 41 on Inquiry Card—Page 17

PVC Fittings, Flexible Tubing Assemble Easily



Tube Turns Plastics, Inc., 224 E. Broadway, Louisville 1, Ky., has introduced a line of instrumentation fittings made of unplasticized polyvinyl chloride and, for use with them, corrosion-resistant flexible tubing. Because of their corrosion resistant qualities, strength and low cost, the fittings can be advantageously used in the instrumentation of chemical plants, laboratories and various processing industries. The new products permit an entire assembly to be put together by hand without the use of wrenches, flaring or bending tools. All that is needed is a knife or scissors to cut tubing to proper length. These products, therefore, will effect substantial economies in the labor costs of instrumentation.

Circle No. 42 on Inquiry Card—Page 17

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wherever you are!

How can you go wrong by following the leading manufacturers of widely-diversified products?

Many of them buy their quality-stampings from us . . . and have done so for years!

And their plants are located . . . literally . . . from coast to coast.

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408 Midland Ave., Detroit 3, Mich.
Phone — Townsend 8-5080

• AMERICA'S BEST KNOWN
JOB STAMPING MANUFACTURER
For More Information Circle No. 231
on Inquiry Card—Page 17
For More Information Circle No. 232
on Inquiry Card—Page 17

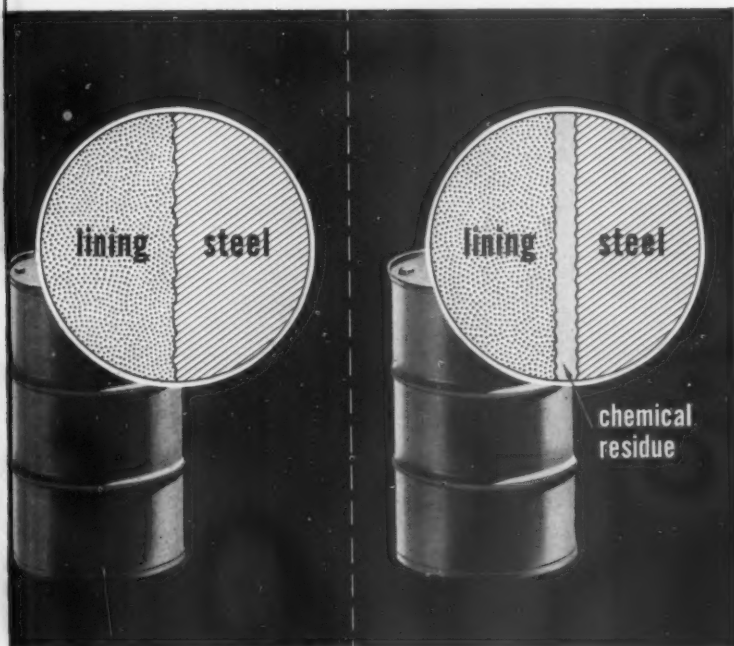
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important reasons...

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SHOT-BLASTING. Rheem physically cleans its steel by shot-blasting so that protective linings or exterior coatings get a *bulldog grip* on the hills and valleys in scientifically roughened steel.



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3

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YOU CAN RELY ON



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**For wider adaptation . . . and
unmatched Service Life the New**



Vogt



**DROP FORGED STEEL
VALVES**

Economy of operation plus a broad adaptability to a wide variety of industrial applications, are outstanding features of the new line of Vogt GP Valves. A complete range of sizes and types embodying exclusive performance features, including Stellite faced seating surfaces are available.

Send for the new G.P. Catalog shown below.

The GP forged steel screw and socket weld end valves meet the demands of industry for a complete line of compact, lighter weight, shorter face-to-face valves.

150-800 Pounds Service
(2000 pounds cold)

**Featuring Stellite Faced
Seating Surfaces**

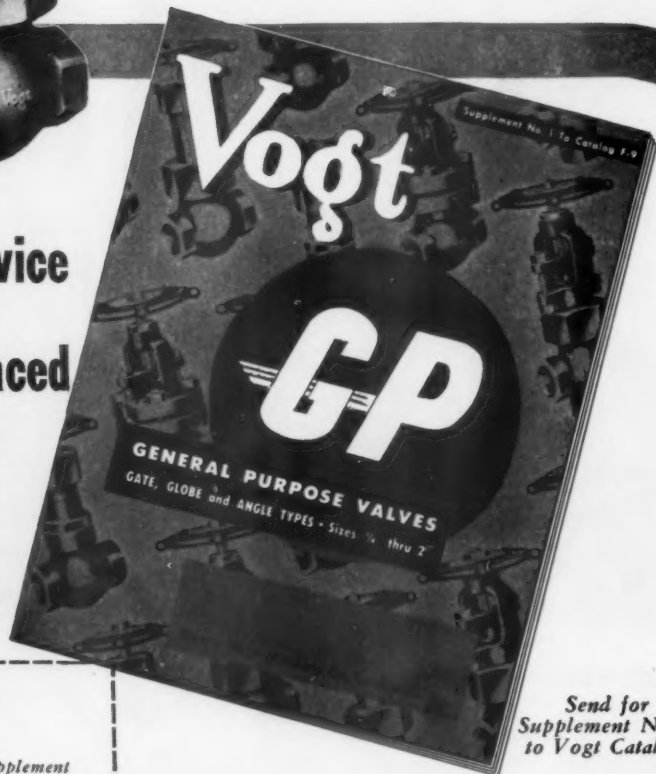
Sizes $\frac{1}{4}$ " to 2"

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SALES OFFICES: New York, Philadelphia, Cleveland, Chicago, St. Louis,
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MASTER			
ALTERNATING CURRENT MOTOR			
SERIAL	✓	STYLE	✓
TYPE	✓	FRAME	✓
VOLTS	✓	H.P.	✓
AMPS.	✓	CYCLES	✓
R.P.M.	✓	PHASE	✓
CODE	✓	SERVICE FACTOR	✓
TEMP. RATING		✓	
MANUFACTURED BY			
THE MASTER ELECTRIC CO., DAYTON, O., U.S.A.			
62916		PATENTS PENDING	

What are your power drive requirements? Here at Master, with the widest selection in the nation to choose from, you're sure to fill your needs quickest and best.

Need something special in gear reduction—electric brakes—variable speed operation—fluid drive or special mounting? Or would some of our standard models ($\frac{1}{8}$ to 400 H.P.) fill the bill? You'll find the answer here! And remember, all Master components are engineered to form combinations of units in one streamlined, compact package of efficiency. Name your need and the name that fills it is Master—for greater salability of motor driven products; for increased productivity of plant equipment.

Motor Ratings. $\frac{1}{8}$ to 400 H.P. All phases, voltages and frequencies.

Motor Types. Squirrel cage, slip ring, synchronous, repulsion-start induction, capacitor, direct current.

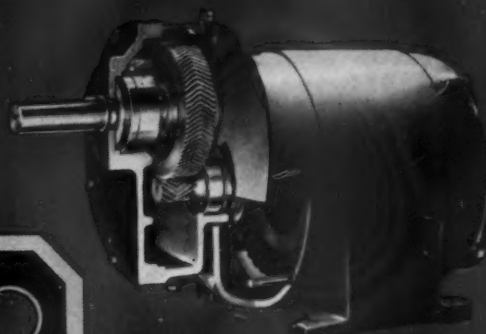
Construction. Open, enclosed, splash-proof, fan-cooled, explosion-proof, special purpose.

Speeds. Single speed, multi-speed, and variable speed.

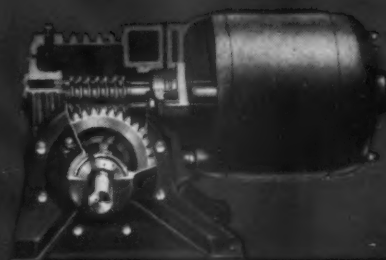
Installation. Horizontal or vertical, with or without flanges and other features.

Power Drive Features. Electric brakes (2 types)— 5 types of gear reduction up to 432 to 1 ratio. Mechanically and electronically-controlled variable speed units—fluid drives—every type of mounting.

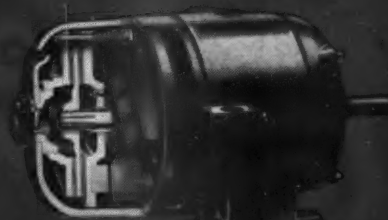
THE **MASTER** ELECTRIC COMPANY
DAYTON 1, OHIO



Parallel Shaft Gearmotors



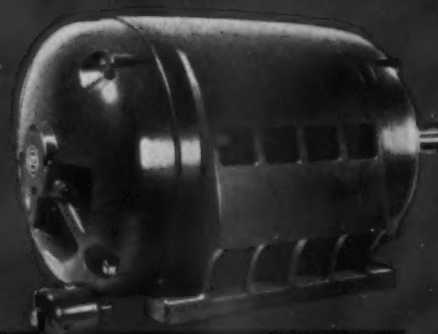
Right-Angle Shaft Gearmotors



Unibrake Motors



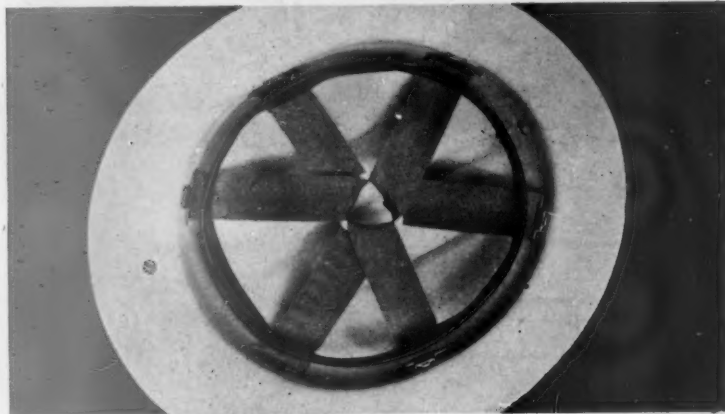
Speedrangers



Standard Motors— $\frac{1}{8}$ to 400 H.P.

Bullard Safety Buyer's Guide

HEADBANDS REDUCE HARD HAT INVENTORIES



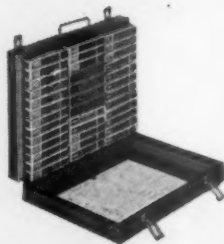
The flexibility of the exclusive headband construction of this Bullard safety hat lets you carry a smaller hat inventory. The problem of stocking various sizes is simplified because this headband can be adjusted in seconds to sizes 6 $\frac{3}{8}$ to 7 $\frac{3}{4}$, and can be changed instantly with a clean inexpensive replacement. Of course, all Bullard Glass Fiber or aluminum hats and caps surpass all standard industrial tests. Choice of colors available in both glass and aluminum hats and caps.

Close
the
Gate
to
Accidents



Bullard-Burnham Safety Hooks are equipped with a pushbutton gate that makes it impossible for loads to jar loose until the hook is manually unlocked, and also acts as a constant safety gauge indicating whether or not the hook is sprung. In either the open or closed position the safety gate leaves the hook's throat clear. Available on all standard hooks.

CUT FIRST AID LOSS DUE TO SPOILAGE OR NON-USAGE



Often in buying standard first aid units you receive an overabundance of supplies that are of little or no use. Bullard first aid, CUSTOM DESIGNED for every industrial application, offers you a wide selection of Unit fills so that you can purchase only those units that fit the accident patterns of your company. This buying of supplies that are of value to you, coupled with Bullard's individual packaging of each Unit, can save you hundreds of dollars yearly. Our distributors' sales representatives will gladly show you Bullard Kits, and assist in proper selections.

see our catalog in



or write for copy



New safety equipment catalog now available . . . write for it!

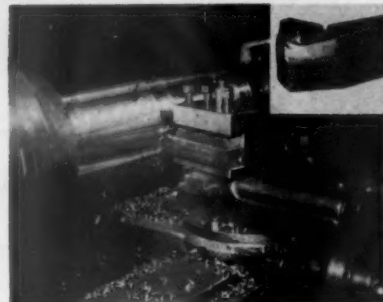
BULLARD

E. D. BULLARD COMPANY • 275 Eighth St., San Francisco, California

For More Information Circle No. 235 on Inquiry Card—Page 17

new
products

Superior Ceramic Metal-Cutting Tool



Norton Co., Worcester 6, Mass., announces the development of a ceramic metal-cutting tool that tests have shown to give startling results. Tests on steel (SAE 1020 and SAE 4140), commercial brass and low alloy cast iron show that the hardness, high temperature strength and wear-resistance properties of these tools, made of aluminum oxide, are superior to metallic tool compositions. Because they can be operated at higher speeds, these ceramic tools cut up to three times faster than conventional ones. Also, they require no coolant while, at the same time, producing excellent surface finish. The abundant supply of ceramic material will give these tools the advantage of being less expensive than conventional tools.

Circle No. 43 on Inquiry Card—Page 17

Insulating Headgear Protects Electrical Workers

E. D. Bullard Co., 275 Eighth St., San Francisco 3, Calif., has on the market insulating headgear that provides protection both against impact from falling or flying objects and electric shock and burn. Manufactured from a specially developed plastic *Estherene*, the head gear has no metal in the shell, suspension or chin strap to act as a conductor. The plastic, of which the headgear is made, is a tough, non-aging, self-extinguishing material that passes the mechanical proof test (8 lb ball dropped 5 ft), the electrical proof test, and all other tests listed in the EEI and Federal Government specifications.

Circle No. 44 on Inquiry Card—Page 17

For More Information Circle No. 236 on Inquiry Card—Page 17—

PURCHASING



it's

**Buyer's
MARKET**

time

AT YOUR FRIGIDAIRE DEALER'S

See him now for values
in Frigidaire Conditioning
and Commercial Refrigeration,
and for your
Fall Service Check-up *

The hot weather is over! Air conditioning and refrigeration equipment is getting a "breather" after record-breaking summer heat. And right now you'll find it's a buyer's market at your Frigidaire Dealer's! That's why this is the best time to see him about replacing old or adding additional equipment.

NOW, you'll get the best values! You'll get genuine Frigidaire values during Buyer's Market time!



Now's the time for a thorough maintenance check-up of your refrigeration and air conditioning equipment. Call your *Frigidaire Dealer* today for prompt, reliable service at reasonable rates.



go... phone...or mail the coupon

NOW, you start saving immediately when you replace old, inefficient, troublesome equipment. And its trade-in value will *never* be greater.

NOW, delivery and installation can be made at your convenience. And you'll be all set for the first days of hot weather and for peak refrigeration needs next year.

NOW is the time to call your Frigidaire Conditioning or Commercial Refrigeration Dealer. He is eager to serve you—right now! You'll find him listed in the "Yellow Pages"—or mail this coupon for more information.

FRIGIDAIRE

DIVISION OF GENERAL MOTORS

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- ☐ AIR CONDITIONING FOR HOMES
- ☐ COMPRESSORS ☐ ICE CUBE MAKERS
- ☐ WATER COOLERS ☐ FROZEN FOOD CABINETS
- ☐ REACH-IN REFRIGERATORS
- ☐ I AM INTERESTED IN A FALL SERVICE CHECK-UP OF MY PRESENT EQUIPMENT.

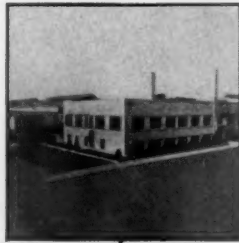
Name

Address

City State



this truck



this terminal



this control room



this routing guide



**are at
your service**

... all key phases of SPECTOR'S

Customized

FREIGHT TRANSPORTATION SERVICE

Today's purchasing agent knows the importance of efficient, engineered transportation in controlling the cost and flow of materials used in his plant. His increasing reliance upon motor transportation over the past decade attests to its many comparative advantages—its flexibility, its speed, its versatility, its economy.

Serving more than 5000 industrial and commercial points in 37 states, Spector enables the progressive purchasing agent to broaden his list of sources, reduce over-all inventories and capital investment, coordinate his inbound materials with the distribution of plant output.

Get the facts from your traffic manager or your nearest Spector representative.

A U.S. Custom Bonded Common Carrier



SPECTOR FREIGHT SYSTEM, INC.

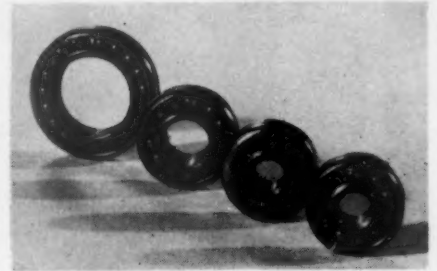
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St. Louis • Springfield (Mass.) • Worcester

For More Information Circle No. 237 on Inquiry Card—Page 17

new products

Bearings Cut Installation Time 78%



Adaptable to shaft sizes, up to 1/2" diam, a line of low cost, semi-precision ball bearings, made by Free-way Washer & Stamping Co., 4911 Grant Ave., Cleveland 5, Ohio, is claimed to incorporate a new design principle which cuts installation time up to 78%. They feature precision-ground balls and case-hardened races to withstand heavy radial loads.

Circle No. 45 on Inquiry Card—Page 17

Lightweight Saw Cuts Fatigue



A new lightweight circular power saw has been announced by the Mall Tool Company, 7725 S. Chicago Ave., Chicago 19. The designers believe that it is ideal for prolonged cutting without tiring the operator.

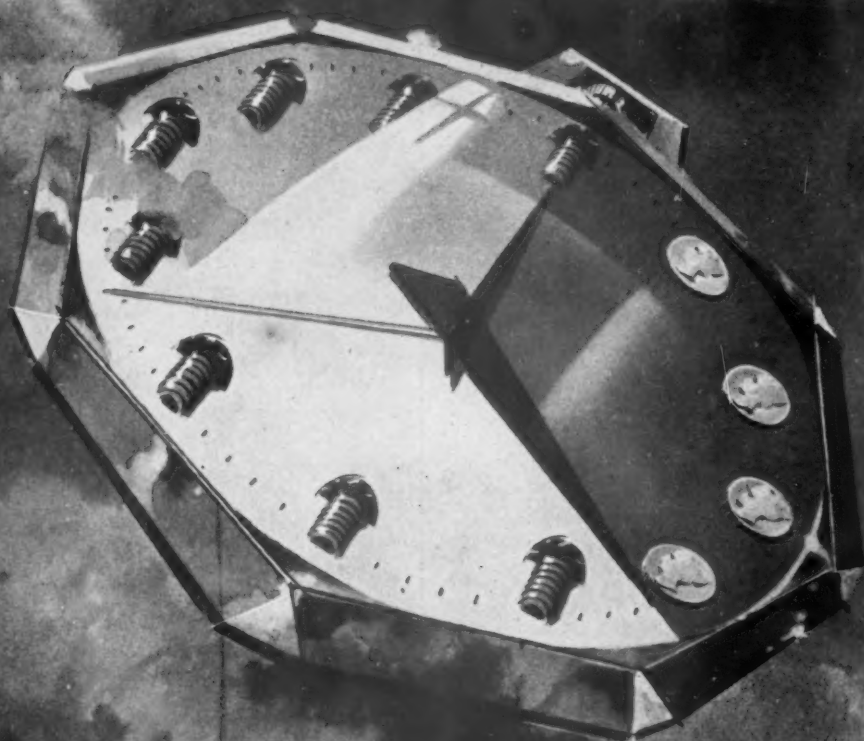
Specifications on this model 65 circular saw are: blade diameter—6 1/2"; ampere rating—5 amperes at 115 volts; blade guard—telescoping; blade speed—4,000 free; motor—AC-DC, 25 to 60 cycles; voltage—115 (230 available); maximum cut—2 1/16" deep; bevel cut—2 x 4's at 45 degrees with 6 1/2" blade; extra blades are available at an additional cost.

Circle No. 46 on Inquiry Card—Page 17

For More Information Circle No. 238
on Inquiry Card—Page 17→

PURCHASING

Hours and minutes are dollars and cents



Save with

SEMS

Pre-assembled screw and lock washer

Multiply a minute by a million and you have the time saved by SEMS on mass-assembly lines everywhere. Save time on *your* assembly line! Turn a tedious, time-wasting hand operation into actual cash savings. SEMS are *pre-assembled*. There's one unit instead of two . . . they can't drop the lock washer . . . and driving is faster.

36 sources

FOR FAST SERVICE ON SEMS

SCOVILL MANUFACTURING CO.
Waterville Division, Waterville 48, Conn.
SHAKEPROOF DIVISION
Illinois Tool Works, Elgin, Illinois
SOUTHINGTON HARDWARE MFG. CO.
Southington, Conn.
STEEL CO. OF CANADA, LTD.
Hamilton, Ont., Canada
THOMPSON-BREMER & CO.
Chicago 22, Illinois
TRIPLEX SCREW CO.
Cleveland 9, Ohio
WALES-BESCH CORP.
Rockford, Illinois
A. A. FASTENER CORP.
Rockford, Illinois
AMERICAN SCREW COMPANY
Willimantic, Connecticut
THE BLAKE & JOHNSON CO.
Waterville 14, Connecticut
BUTCHER & HART MFG. CO.
Allona, Penn.
CANADA ILLINOIS TOOLS LTD.
Toronto, Ont., Canada
CENTRAL SCREW COMPANY
Chicago 9, Illinois
Keene, New Hampshire
CLEVELAND CAP SCREW CO.
Cleveland 4, Ohio
CONNECTICUT SCREW & RIVET CO., INC.
Waterbury 20, Connecticut
CONTINENTAL SCREW CO.
New Bedford, Mass.
EATON MANUFACTURING CO.
Reliance Division, Massillon, Ohio
London, Ontario
ELCO TOOL & SCREW CORPORATION
Rockford, Illinois
FEDERAL SCREW WORKS
Detroit 10, Michigan
GREAT LAKES SCREW CORPORATION
Chicago 27, Illinois
H. M. HARPER CO.
Morton Grove, Illinois
HARVEY HUBBELL, INC.
Bridgeport 2, Connecticut
INDIANA METAL PRODUCTS CORP.
Rochester, Indiana
LAKE ERIE SCREW CORP.
Cleveland 7, Ohio
THE LAMSON & SESSIONS CO.
Cleveland 2, Ohio
MIDLAND SCREW CORP.
Chicago 32, Illinois
NATIONAL LOCK COMPANY
Rockford, Illinois
THE NATIONAL SCREW & MFG. CO.
Cleveland 4, Ohio
Los Angeles 22, California
OLIVER IRON & STEEL CORP.
Pittsburgh 3, Penn.
PARKER-KALON DIVISION
General American Transportation Corp., New York 14, N. Y.
PMBOLL MANUFACTURING CO.
Chicago 50, Illinois
REPUBLIC STEEL CORP.
Bolt & Nut Division, Cleveland 13, Ohio
RING SCREW WORKS
Van Dyke, Michigan
P. L. ROBERTSON MFG. CO., LTD.
Milton, Ont., Canada
ROCKFORD SCREW PRODUCTS CO.
Rockford, Illinois
RUSSELL, BURDELL & WARD
Bolt & Nut Co., Port Chester, N. Y.
Los Angeles 33, California



FOR EXTRA QUALITY SPECIFY
SHAKEPROOF® LOCK WASHERS

When you purchase SEMS, specify SHAKEPROOF® Lock Washers, the only lock washers with tapered-twisted teeth and specially designed for SEMS. SEMS save time . . . SHAKEPROOF Lock Washers insure quality!

SEMS is a development of
Illinois Tool Works, Chicago



If your sawing costs are mounting because you're not getting consistent low-cost operation, maximum production, and minimum downtime, call your Victor Distributor. He's the man who can bring your costs down to eye level. Once he's listened to your troubles, he'll recommend the *right* Victor Hand and Power Hacksaws, Metal and Wood Cutting Band Saws, and Hacksaw Frames for all your needs.

Your Victor Distributor will especially want to tell you about Victor "Moly"® High Speed steel blades. He'll tell you that "Moly" blades can save you real money because they outlast standard steel blades 10 to 1, cut as well as the *best* high speed steel blades made, and yet are substantially lower in cost!

And be sure to ask your Victor Distributor for a supply of our NEW Metal Cutting Booklets and Wall Charts. They're packed full of interesting information.

Sold Only Through
Recognized Distributors

VICTOR

SAW WORKS, INC., MIDDLETOWN, N.Y., U.S.A.
MAKERS OF HAND AND POWER HACKSAW BLADES, FRAMES,
AND METAL AND WOOD CUTTING BAND SAW BLADES
For More Information Circle No. 239
on Inquiry Card—Page 17

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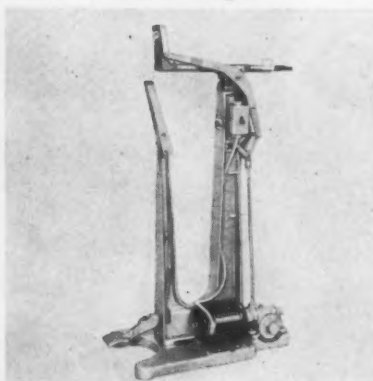
new
products

Continuous Paperboard Sheet for Custom Packaging

National Container Corp., 7 Central Park W., New York 23, N. Y., has come up with a product that solves the problem of the shipper with products of various shapes and sizes. In future, such a shipper will be relieved of the need to stock a multitude of box sizes. National Container is now producing paperboard in a continuous sheet in lengths specified by the customer and in bundles folded lap on lap, accordion-style. Custom pre-scored longitudinally according to individual specifications, the sheets make packaging of odd shapes and sizes easy. A single fold can be formed into a wide range of dimensions.

Circle No. 47 on Inquiry Card—Page 17

Seals Box Bottoms with Fewer Staples



A motorized, wide-crowned stapling machine has been designed by Bostitch of Westerly, R. I., to seal box bottoms with fewer staples. It drives a heavy-duty, copper-coated staple which straddles the container seam where outside flaps meet and fastens them tightly to the inner flaps. The staples are spaced up to 5" apart to meet standard freight specifications. Three or four of these staples do work which usually requires 12 to 16 staples of the customary size. Containers are easily inserted or removed from the bottoming post. The machine is available for foot or motor operation. The motorized unit operates at 186 strokes per min.

Circle No. 48 on Inquiry Card—Page 17

TEXLITE
®

**SIGNS
OF
QUALITY**

**ALL
OVER
AMERICA**



Another famous
sign quality built
by Texlite.

Let Texlite solve your sign problems, as we have for so many of the nation's leading companies. What are your needs . . . 10 . . . 100 . . . 1,000 . . . or more? Texlite has the nation's most complete sign manufacturing plant for building quality signs of porcelain enamel or plastic in any quantity. Our services are complete:

**DESIGN • ENGINEERING
FABRICATION • ERECTION
MAINTENANCE**

Turn to Texlite for signs of
quality.

in our 76th year
TEXLITE, INC.

3305 Manor Way • Dallas, Texas

Offices in:
New York, Chicago,
Los Angeles, Houston,
Atlanta, Denver,
Tulsa

Manufacturers of quality porcelain
enamel and plastic signs for
national firms.

For More Information Circle No. 240
on Inquiry Card—Page 17

For More Information Circle No. 241
on Inquiry Card—Page 17→

**Check your
Stainless Steel
requirements
against this table**
*...you'll find what
you want*

If you buy Stainless Steel, one glance at this table will tell you that United States Steel is your best single source of supply for Stainless.

Check grades . . . shapes . . . sizes . . . finishes. Nowhere else will you find a wider selection to meet your fabricating and end use requirements. And both sales and producing facilities are convenient to you, no matter where you are located.

Whatever your requirements, you are sure of getting, in USS Stainless Steel, a service-tested material that will give the performance you want in fabrication and in end use.

Call United States Steel first when you need Stainless Steel.

SPOT SERVICE ON STAINLESS STEEL. For prompt service on your immediate requirements, call your warehouse distributor who handles USS Stainless Steel. He can offer you fast delivery.

PRODUCT	FINISHES	WIDTHS	LENGTHS	THICKNESSES	SIZES
SHEETS	No. 1—No. 2D No. 2B—No. 4 No. 3 No. 6—No. 7	from 24" to 72"	up to 196" in cut lengths Also available in coils up to 48" (only in unpolished finishes 2B and 2D)	from .014" to .1874"	
PLATES	HR—HRA—HRA&P Polished	over 10" to 132"	up to 432"	.1875" and heavier	
ANGLES	HRA&P		up to 360"	from 1/8" to 1 1/8"	from 3/4" x 3/4" to 8" x 8"
BARS Rounds, Squares, Octagons, Hexagons Special Sections	HR—HRA—HRA&P CD—RT CP—CG & Polished (Rounds only) (Rolled or Extruded)		up to 360"		from 1/4" to 9"
SEMI-FINISHED Blooms, Billets		from 4" to 15 1/8"		from 4" to 15 1/8"	
FLATS	HR—HRA—HRA&P CD	from 3/8" to 10"	up to 360"	from 1/8" to 2 1/8"	
WIRE Coils and Straight and Cut	Copper, Lead, Tin, Galvanized, Wax, Bright, Oil, Soap, Lime		from 12" to 22'		from .008 to .500
COLD-ROLLED STRIP Coils and Straight and Cut	No. 1, No. 2	from 3/16" to 23 15/16"	from 12" to 20'	from .010" to .1874"	
TUBING	Standard Pickle, Grit No.'s 80, 120, 180, 320 and rouge polishing		Comparable to other carbon, alloy cold- drawn tubing		O. D. SIZES from 3/8" to 9"

GRADES

A.I.S.I. TYPE	USS DESIGNATION	A.I.S.I. TYPE	USS DESIGNATION	A.I.S.I. TYPE	USS DESIGNATION
300 SERIES		316L	USS 18-8Mo C.03 Max.	420	
301	USS 17-7	317	USS 19-9Mo	430	USS 17
302	USS 18-8		USS 18-8MoCbTa	430F	
302B		321	USS 18-8Ti	430T	
303	USS 18-8FM	347	USS 18-8Cb	431	
303Se	USS 18-8FMSse		USS-18-8CbTa		
304	USS 18-8S		USS 12-12		
304L	USS 18-8S C.03 Max.			442	
305	USS 18-8FS			446	USS 27
308	USS 20-10S				
309	USS 25-12	400 SERIES			
309S	USS 25-12S	403	USS 12 Turbine	500 SERIES	
310	USS 25-20	405	USS 12 AL		
310S	USS 25-20S	410	USS 12		USS 5Mo
314	USS 25-20Si	416	USS 12FM		USS 55Mo
316	USS 18-8Mo	416Se	USS 12FMSse		

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS STAINLESS STEEL



SHEETS • STRIP • PLATES • BARS • BILLETS • PIPE • TUBES • WIRE • SPECIAL SECTIONS

UNITED STATES STEEL



how SPALDING slashed par for golf club finishing costs!

Smoothing and polishing finely balanced stainless steel golf clubs was a costly, time-consuming operation — until Jewel Brand Abrasive Engineers helped solve the problem once and for all at the world-famed A. G. Spalding & Bros. Inc., sporting goods plant in Chicopee, Massachusetts. After a careful on-the-job analysis of the exact finishing requirements, experienced Jewel Brand Engineers were able to select an abrasive belt that not only smoothed and polished precision-made putters and irons faster and easier but brought savings of up to 75%.

This is just one of many examples of the special knack Jewel Brand Abrasive Engineers have for solving out-of-the-ordinary

finishing problems. Combine this ability with the fact that Jewel Brand Abrasive Belts have earned an industry-wide reputation for longer wear plus faster, cleaner cutting action and you have the reason why cost-wise manufacturers everywhere turn to Jewel Brand *first* for finer finishing. Why not prove the advantages of this combination for yourself. Call your nearby Jewel Brand Abrasive Engineer or Industrial Distributor today or write us direct. Abrasive Products, Inc., 523 Pearl Street, South Braintree 85, Massachusetts.



**JEWEL BRAND
Abrasive Belts**

BRANCH OFFICES and WAREHOUSES

New York	Pittsburgh	High Point
Chicago	St. Louis	Los Angeles
Cleveland	Detroit	Portland, Ore.



Abrasive Products, Inc.

SOUTH BRAINTREE 85, MASSACHUSETTS • MAKERS OF JEWEL COATED ABRASIVES

For More Information Circle No. 242 on Inquiry Card—Page 17

new
products

Inert Gas Consumable Electrode Welding

A new automatic welding head is being introduced by Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y. The unit is designed for automatic welding applications, employing the inert gas consumable electrode method. Argon, carbon dioxide, and helium shielding gases and all kinds of welding wires (steel, aluminum, bronzes, stainless and Strandalloy), from .030" diam and up, can be used. The new head is low priced because of the single motor drive with simplified controls. Compact in design, the new head has a continuous current rating of 600 amp.

Circle No. 49 on Inquiry Card—Page 17

Magnetic Counter for Moderate Duty



Designed for moderate counting duty, where extreme long life is not required, a reset magnetic counter may be actuated by any type of switch, relay or photoelectric unit. It is easily connected in series with any device having a contact arrangement. Maximum recommended speed is 700 counts per minute. Watt consumption is 4.5 at rated voltage (24 and 110 v a-c/d-c types are standard). Counter measures 2¼" wide by 2½" high. Figures are .188" high. Standard counter has 3 figures but 4 may be provided on special order from the manufacturer, Veeder-Root Inc., Hartford 2, Conn.

Circle No. 50 on Inquiry Card—Page 17



What a fight against time Santa used to go through
On the night when his Christmas deliveries were due!



Here's the dependable way he now beats the clock:
Swift **RAILWAY EXPRESS** helps in moving his stock!

The big difference is

Whether you're sending or receiving, whether your shipment is big or small, and whether it's moving by rail or air—you'll find it pays to specify Railway Express. It makes the big difference in speed, economy, and safe, sure delivery.

• • •
Railway Express uses the facilities of some 480 independent and competitive transportation companies in the movement of express traffic. It's free enterprise at its best, putting at your service one-third of a million miles of co-ordinated rail, air, water, and truck routes that connect all America.



... safe, swift, sure



ALLMETAL'S AWARD COMMITTEE huddle includes (l. to r.) Stanley R. Marsh, Marvin Tabak, Jack Epstein, and Nat Epstein.

Stainless steel plaque will be awarded to the editor of the magazine carrying the winning article.

\$1,000 ALLMETAL AWARD ANNOUNCED

Allmetal Screw Products initiates award for top article about stainless steel

Attempting to bring more information about stainless steel to industry, Allmetal Screw Products announced its sponsorship of an annual award. First prize: \$1,000 to the author of the industrial magazine article of most value and interest to those who specify or buy stainless steel parts or components. Need for the award was realized when Allmetal

(leading manufacturer of stainless fasteners) found U. S. annual stainless steel volume to have doubled since 1945—but communication about its applications at pre-war level. Hoped-for results: articles about stainless that are clearer, documented, and more informative. Winner will be announced in February at the Garden City, New York, plant.

PANEL FROM STEEL INDUSTRY TO PICK WINNING ARTICLE



ALLEGHENY LUDLUM'S F. Price Norris, Jr., Director of Stainless Steel Sales.



ARMCO'S R. G. Sloan, Manager, Development Engineering Department.



AISI'S Richard E. Paret, Secretary, Committee of Stainless Steel Producers.



CRUCIBLE'S James D. Glenn, General Manager of Sales.

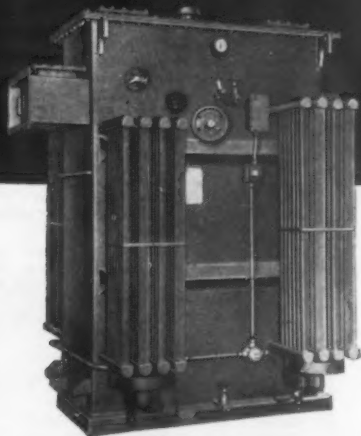
For More Information Circle No. 244 on Inquiry Card—Page 17

Wagner®

TRANSFORMERS

...the choice of leaders
in industry

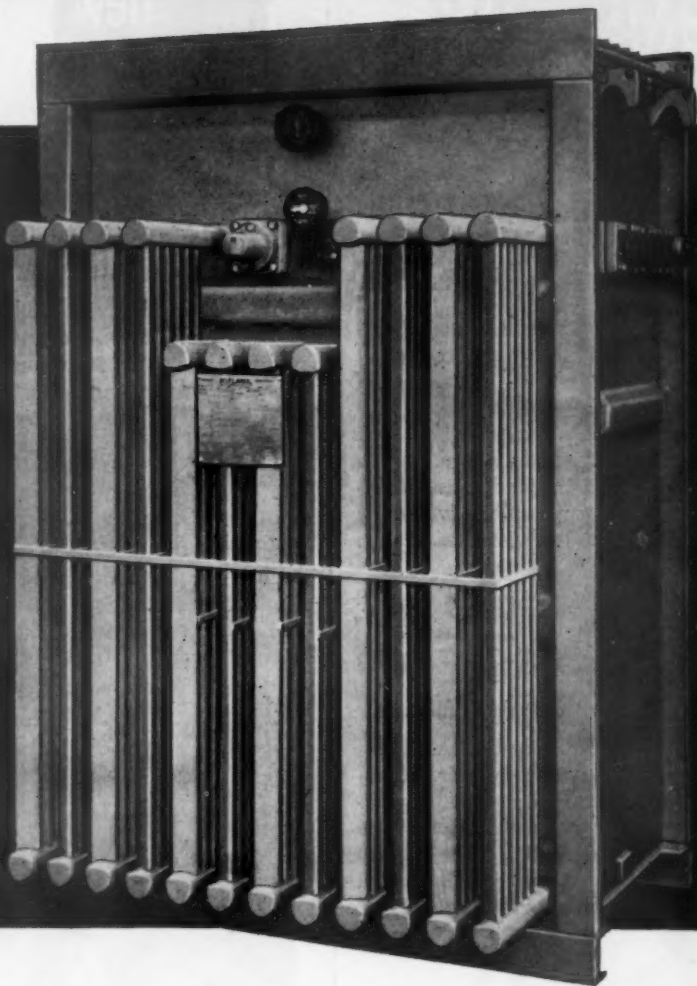
for space-saving
load centers...
specify Wagner
Close-Coupled
Unit Substation
Transformers



Wagner

THROAT-CONNECTED UNIT SUBSTATION TRANSFORMERS

For outdoor installation, or for applications where it is desirable to locate the transformer away from the switchgear, Wagner can furnish these liquid-filled transformers in ratings to 2000 kva, 15 kv and below. Bulletin TU-13 gives full information.



Now, Wagner liquid-filled unit substation transformers are available in new, improved close-coupled units, rated from 300 to 2000 kva, that can be flush-mounted with any make of switchgear. They can be used in both single and double-ended unit substations to form neat, compact, streamlined substations for modern industrial service.

Bushings are provided on the ends of the close-coupled transformer for connection to the switchgear. The bushing heights are designed for a minimum distance from the base, giving ample room to make connection to switchgear or busses in the switchgear compartment or transition section.

In this type design it is not necessary to coordinate bushing height of transformer and switchgear as in the throat connected units which often require special throat heights to match special switchgear. This feature means that a standard transformer can be used for special switchgear application with a minimum of engineering coordination, resulting in shorter deliveries.

Look to Wagner for better transformers that assure a continuous, dependable flow of power. Your nearby Wagner engineer will be glad to help you solve your load-center problems. Call the nearest of our 32 branch offices, or write us.



WAGNER ELECTRIC CORPORATION
6360 PLYMOUTH AVE., ST. LOUIS 14, MO., U.S.A.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

ELECTRIC MOTORS
TRANSFORMERS
INDUSTRIAL BRAKES
AUTOMOTIVE
BRAKE SYSTEMS—
AIR AND HYDRAULIC

T55-2

DECEMBER, 1955

For More Information Circle No. 245 on Inquiry Card—Page 17

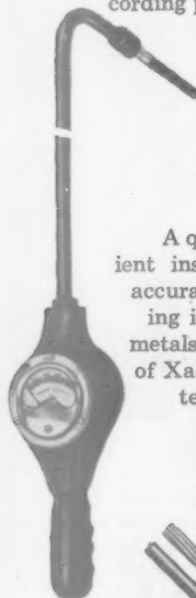
161

PRECISION TEMPERATURE measurement and control



GORDON XACTLINE

Controls temperature automatically within a fraction of a degree in any heat process. A complete factory-assembled unit ready for installation anywhere. Can be used with any existing indicating or recording pyrometer controller—regardless of age.



GORDON XACTEMP Hand Pyrometer

A quality-built, convenient instrument for quick, accurate temperature reading in molten nonferrous metals. Also, other models of Xactemp for all-around temperature checking.

GORDON SERV-RITE

Thermocouple Wire
Thermocouple Extension Wire

Insulated in Gordon's own plant to assure consistent quality. All standard wire and insulations carried in stock for quick delivery. Other wires, in long or short runs, manufactured to specifications.

Full Particulars on Request

**GORDON
SERVICE**

5148

CLAUDE S. GORDON CO.

Manufacturers • Engineers • Distributors
Temperature Control Instruments • Thermocouples &
Accessories • Industrial Furnaces & Ovens • Metal-
lurgical Testing Machines

619 West 30th Street, Chicago 16, Illinois
2015 Hamilton Avenue, Cleveland 14, Ohio

For More Information Circle No. 246
on Inquiry Card—Page 17

new
products

Saw Blade With Positive Rake Teeth Cuts Many Materials

The American Saw & Mfg. Co., Springfield, Mass., has developed a band saw blade with positive rake teeth for cutting non-ferrous metals, wood, and plastics. Positive rake teeth have a forward inclination so that they "hook" themselves into the work to cut with greater ease than the conventional zero rake band saw teeth. The blade features rounded gullets, designed for maximum chip clearance. Blade teeth are flame hardened to 63-65 Rockwell C for top cutting strength.

Circle No. 51 on Inquiry Card—Page 17

Long-Lasting Hot-Materials Conveyor Belt



A new type of hot-materials elevator belt is now available. It has a cover of "Hypalon" chemical rubber, a development of E. I. Du Pont de Nemours & Co., Wilmington, Del. On applications handling materials at a temperature of from 300 F to a maximum of 500 F, the new conveyor belt has lasted over six months, where previously belts lasted only two to three months. In addition to its use in hot-materials conveyor belts, "Hypalon" chemical rubber is being used for heat-resistant spark plug boots on automobile engines. It is available as sheet packing and gasketing and has many other uses where heat resistance is required along with resistance to ozone, weather and chemicals.

Circle No. 52 on Inquiry Card—Page 17

REYNOLDS DISTRIBUTORS

ALABAMA

Southern States Iron Roofing Co., Birmingham

CALIFORNIA

Bralco Metals, Inc., *Los Angeles
Clingan & Fortier, Inc., Fresno, *Los Angeles, San Francisco and Vernon

Perry Kilsby, Inc., (Tubing & Pipe) *Los Angeles
Pioneer Aluminum Supply Co., *Los Angeles
Turner Metal Supply Co., (Wire, Rod, Bar)

*Huntington Park

Union Hardware & Metal Co., *Los Angeles
United States Steel Supply Div., Los Angeles

CONNECTICUT

American Steel & Aluminum Corp., *Hartford

Peter A. Frasse & Co., Hartford
Scovill Mfg. Co., (Wire, Rod, Bar) *Waterbury

FLORIDA

Coral Gables Supply Co., Miami

Southern States Iron Roofing Co., Jacksonville, Miami, Orlando and Tampa

GEORGIA

Southern States Iron Roofing Co., Atlanta and *Savannah

ILLINOIS

Aluminum Distributors Inc., *Chicago

J. G. Braun Co., (Architectural only) Chicago

Scovill Mfg. Co., (Wire, Rod, Bar) Chicago

United States Steel Supply Div., *Chicago

Benjamin Wolff & Co., *Chicago

INDIANA

W. J. Holliday & Co., *Indianapolis

Kasle Steel Corporation, Elkhart

KANSAS

Industrial Metals, Inc., Wichita

KENTUCKY

Southern States Iron Roofing Co., Louisville

LOUISIANA

Southern States Iron Roofing Co., New Orleans

MARYLAND

Clendenin Bros., Inc., *Baltimore

Lyon, Conklin & Co., Inc., *Baltimore

MASSACHUSETTS

Jos. T. Ryerson & Son, Inc., Boston

MICHIGAN

Kasle Steel Corporation, *Detroit and Grand Rapids

McDonnell Bros., Inc., (Architectural only) *Detroit

Meier Brass & Aluminum Co., *Detroit

MINNESOTA

MacArthur Co., (Architectural only), *St. Paul

United States Steel Supply Div., St. Paul

Vincent Brass & Copper Co., *Minneapolis

MISSOURI

Industrial Metals, Inc., *Kansas City and St. Louis

United States Steel Supply Div., St. Louis

NEW JERSEY

Edgcomb Steel and Aluminum Corp., Hillside

Peter A. Frasse & Co., Lyndhurst

Mapes & Sprowl Steel Co., *Union

Ray Miller, Inc., (Tubing & Pipe) *Newark

NEW YORK

J. G. Braun Co., (Architectural only) *New York

Edgcomb Steel and Aluminum Corp., Hillside, N. J.

Peter A. Frasse & Co., Buffalo, *New York, Rochester, Syracuse

Mapes & Sprowl Steel Co., Union, N. J.

Ontario Metal Supply, Inc., (Wire, Rod, Bar)

*Rochester

NORTH CAROLINA

Southern States Iron Roofing Co., Raleigh

OHIO

Kasle Steel Corporation, Cleveland

Mutual Manufacturing & Supply Co., *Cincinnati

Vorys Brothers, Inc., *Columbus

OREGON

Clingan & Fortier, Inc., Portland

PENNSYLVANIA

Athos Steel Service Co., *Philadelphia

Peter A. Frasse & Co., Philadelphia

Merchant & Evans Co., *Philadelphia

Penna. Industrial Supplies Co., Inc., *Pittsburgh

RHODE ISLAND

Congdon & Carpenter, *Providence

SOUTH CAROLINA

Southern States Iron Roofing Co., Columbia

TENNESSEE

Southern States Iron Roofing Co., Memphis and Nashville

TEXAS

Allied Metals Inc., *Houston

Moncrief-Lenoir Mfg. Co., Dallas, Harlingen,

*Houston, Lubbock, San Antonio and Temple

Vinson Steel and Aluminum Co., *Dallas

UTAH

Salt Lake Hardware Co., *Salt Lake City

VIRGINIA

Southern States Iron Roofing Co., Richmond

WASHINGTON

Clingan & Fortier, Inc., Seattle

WISCONSIN

Benjamin Wolff & Co., Milwaukee

TERRITORY HAWAII

American Factors, Ltd., *Honolulu

*Indicates main office

Look Under "Aluminum" in Your
Classified Telephone Directory

11-3-55

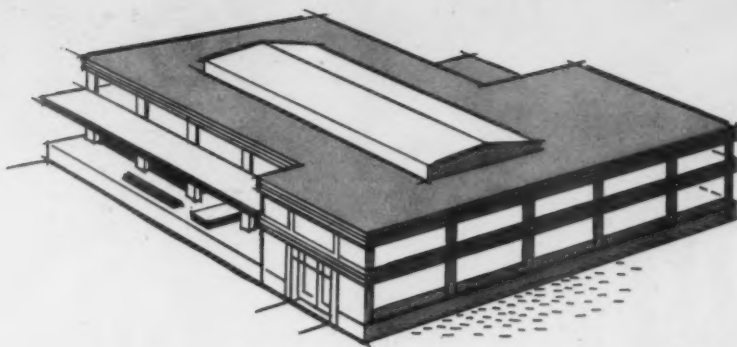
For More Information Circle No. 247
on Inquiry Card—Page 17→

PURCHASING

THE DISTRIBUTOR WAREHOUSE

*...your nearby
source of*

REYNOLDS ALUMINUM



**Complete
Aluminum Service
to supply
your production
needs**

FAST DELIVERY

You get quick service from local stocks

LOWER COSTS

You save space and handling, additional manpower and equipment

EQUIPMENT

Slitting, shearing and sawing services give you aluminum ready for fabrication without metal waste

EXPERT ASSISTANCE

Trained personnel will help you use aluminum most effectively

Call your nearby Reynolds Distributor listed in the adjoining column for his aluminum stock list. *Reynolds Metals Company, Louisville 1, Kentucky*

See Reynolds New Program "Frontier"—Sunday's on NBC-TV.

REYNOLDS



ALUMINUM

MODERN DESIGN HAS ALUMINUM IN MIND



Make stairs

**PLANT MAINTENANCE
COSTS \$2 BILLION
EVERY YEAR!**

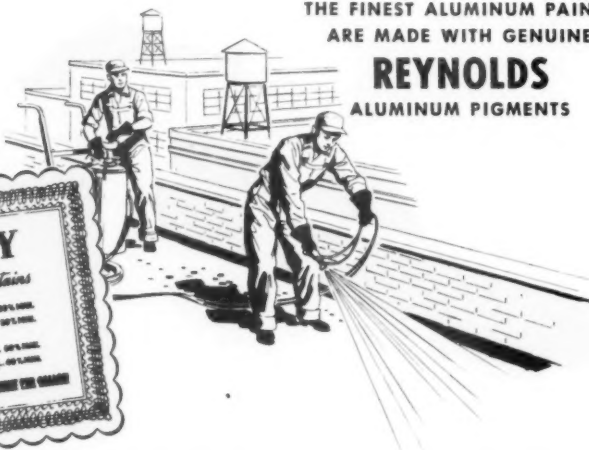
**Let ALUMINUM PAINT reduce this expense
in your plant**

Aluminum paint resists rust and corrosion, seals against moisture, reflects light and heat, reduces evaporation, improves appearance —and One Coat usually covers.

Here, then, is a way to slash your cost of plant maintenance and replacement. Good aluminum paint actually puts a *protective shield* on rustable metal and masonry surfaces. Labor—the largest cost in painting—is low because in most cases only one coat of aluminum paint is needed. To be sure of one coat protection buy a quality brand.

Reynolds Metals Company does not make aluminum paint. But if you would like the names of manufacturers who rely on the high quality of Reynolds Aluminum Pigments, we'll gladly send you the list. Just use the coupon below.

THE FINEST ALUMINUM PAINTS
ARE MADE WITH GENUINE
REYNOLDS
ALUMINUM PIGMENTS



ALUMINUM ROOF PAINTS AND COATINGS ADD YEARS AND YEARS TO ROOF LIFE

They protect rustable metal and built-up roofs, and reflect sun's heat to keep interiors up to 15° cooler in summer. Increase employee efficiency, cut cooling costs. Insist on Asphalt-Aluminum roof paint or coating with this Warranty Seal. It assures you of an approved vehicle and at least two full pounds of pure aluminum metal pigment in every gallon.

***This advertisement appears in the interest of
the Paint Industry of America***

Reynolds Metals Company
P. O. 1800-PP, Louisville 1, Kentucky

Please send me information about
Aluminum Paints and Roof Coatings

- ☐ Also send list of aluminum paint manufacturers
- ☐ Also send list of asphalt-aluminum roof paint and coating manufacturers

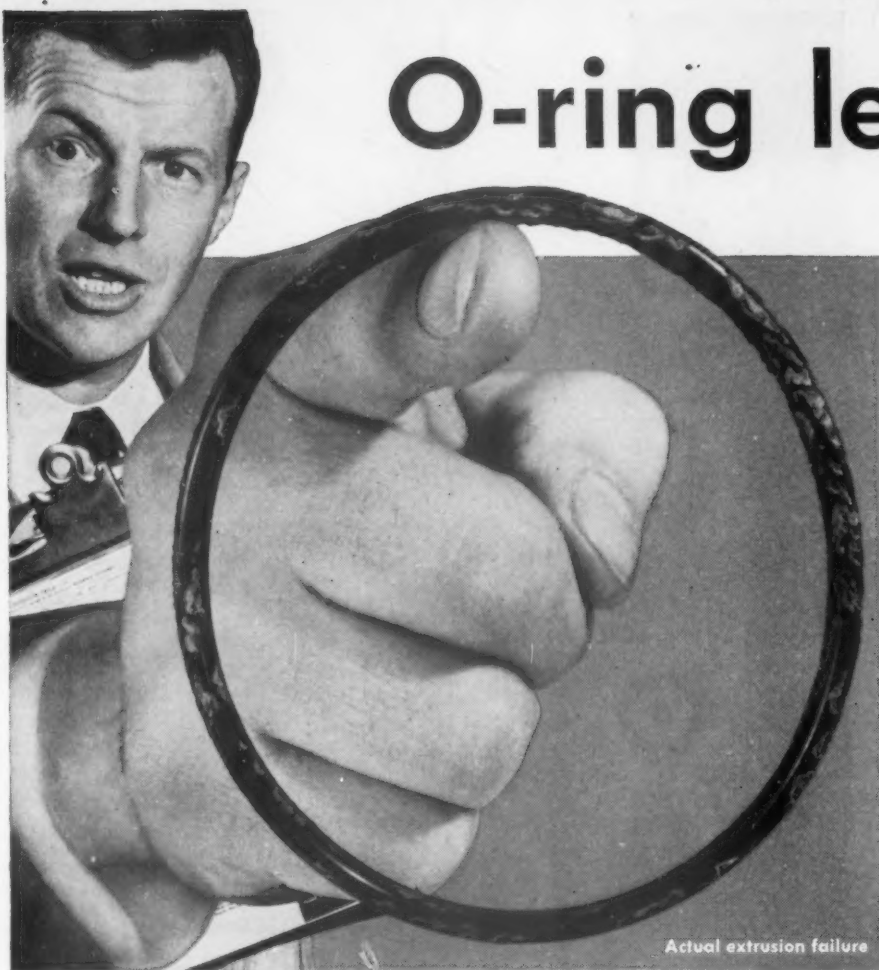
Name

Company

Address

City Zone State

O-ring leaks?



... then call in your Parker field engineer for help

Having trouble with O-ring failures? Nibbled, worn, battered, leaking like a sieve? Whether your problem is in the basic design or compound, it's time to call a Parker representative.

Parker field engineers are trained trouble shooters. There is one in your area. From Parker you can get exactly the *right* O-ring and gland design for your *specific* application.

Compare Parker O-rings with any other make. You'll find that Parker O-rings are precision-molded of superior compounds. They have been developed as the

result of years of experimentation to provide the proper elongation, tensile strength, compression set ratings, resistance to oils, fuels, chemicals, and high and low temperatures. Laboratory and service tests make sure that all rated characteristics are held.

Call your Parker representative for assistance. Mail the coupon for *free* technical bulletins about O-rings.

RUBBER PRODUCTS DIVISION
The Parker Appliance Company
17325 Euclid Ave., Cleveland 12, Ohio
1538 So. Eastern Ave., Los Angeles, Cal.

Parker

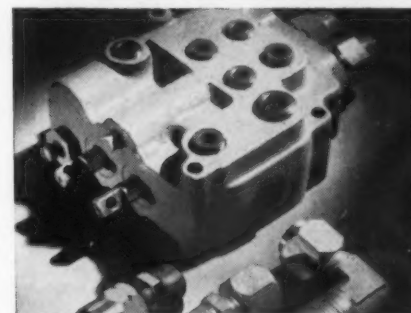
Hydraulic and fluid
system components



Heat failure was caused by a combination of compound and design problems. Parker field engineer was called. Leaks were stopped . . . and complaints ended.



Compare actual samples. Ask your Parker representative to check your specifications and design. Let him prove how Parker O-rings seal better, last longer.



What other Parker products interest you? *Triple-lok* flare tube fittings? *Ferulok* flareless fittings? *Hoze-lok* fittings? Hydraulic directional control valves?

.....

RUBBER PRODUCTS DIV.
Section 513-D
The Parker Appliance Co.
17325 Euclid Ave.
Cleveland 12, Ohio

Please send the following bulletins:

☐ Silicone Rubber Bul. 5605 B1
☐ Materials for O-rings Bul. 5705 B1
☐ O-ring Operation Factors Bul. 5705 B2
☐ Thermal Properties Bul. 5705 B4
☐ Rotary Seal for High Speed Bul. 5705 B5
☐ Aircraft Hydraulic Packings Bul. 5712 B1

Name _____
Company _____
Address _____
City _____ State _____

.....



**Increase
lamp life
25% to 50%**



**with
G-E FS-400
Watch Dog*
STARTERS**

In most two-lamp fluorescent fixtures the life of the lead lamp is shortened by voltage surges occurring before the lamp cathodes are adequately preheated. G.E.'s new FS-400 Starter prevents this premature burnout by delaying the start of the lead circuit lamp until sufficient pre-heating time has elapsed.

Thus, lead lamp life is often increased 50% to 100%; average lamp life (both lead and lag lamps) 25% to 50%. As a result, maintenance costs are reduced and group relamping programs made even more practical.

The new FS-400 offers all the other advantages of G-E Watch Dog starters, too. It automatically cuts failing lamps out of operation, protecting ballasts and fixture wiring, and eliminating lamp blinking. Then, when a new lamp is installed, pressing the red reset button starts the new lamp without the usual waiting period. And, one Watch Dog starter will outlast up to ten ordinary starters. Wiring Device Department, General Electric Company, Providence 7, R. I.

*Registered Trade-mark of General Electric Co.

GENERAL  ELECTRIC

For More Information Circle No. 249
on Inquiry Card—Page 17

**new
products**

Adhesive Coated Felt Mounts For Machinery

Adhesive-coated on both sides, felt mounts designed to reduce machinery noise and vibration, permit quick installation or re-location of equipment without bolts. The mounts are made from wool felt. Its live fibers will not break down after repeated impact loads and they are resistant to oil, grease and acids. The mounts are available in several thicknesses and may be purchased from Western Felt Works, 4021 Ogden Ave., Chicago 23, Ill., cut to size or in flat sheets.

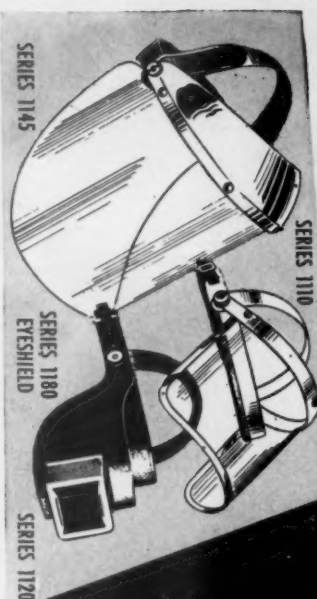
Circle No. 53 on Inquiry Card—Page 17

Foundry Cut-Off Wheel Works Faster, Made Stronger



Faster cutting speed combined with strength is the claim made by the Bay State Abrasive Products Co. for its new "BF" cut-off wheel for foundry applications. New bonds and bonding processes permit an increase in abrasive grain content and allow grains to be bonded in a porous construction. The result is a sharper, faster cutting action. Rough abrasive sides provide clearance to maintain wheel speed at best operating efficiency. The "muscle" needed for rugged foundry work comes from reinforcing layers of high tensile fabric. Recommended for steel, cast iron and non-ferrous metals through a wide range of grits and grades. Sizes available for all cut-off equipment.

Circle No. 54 on Inquiry Card—Page 17



Built for Better Protection
DOCKSON FACE SHIELDS

MAXIMUM PROTECTION—against the hazards of buffing, polishing, grinding, plating, scaling, flash, butt and spot welding; hot-liquid splash, acids or chemicals.

YOUR DOCKSON DISTRIBUTOR—a selected specialist, stocks a complete line of Dockson Products to give you fast service and personal attention. We back our distributors 100%.

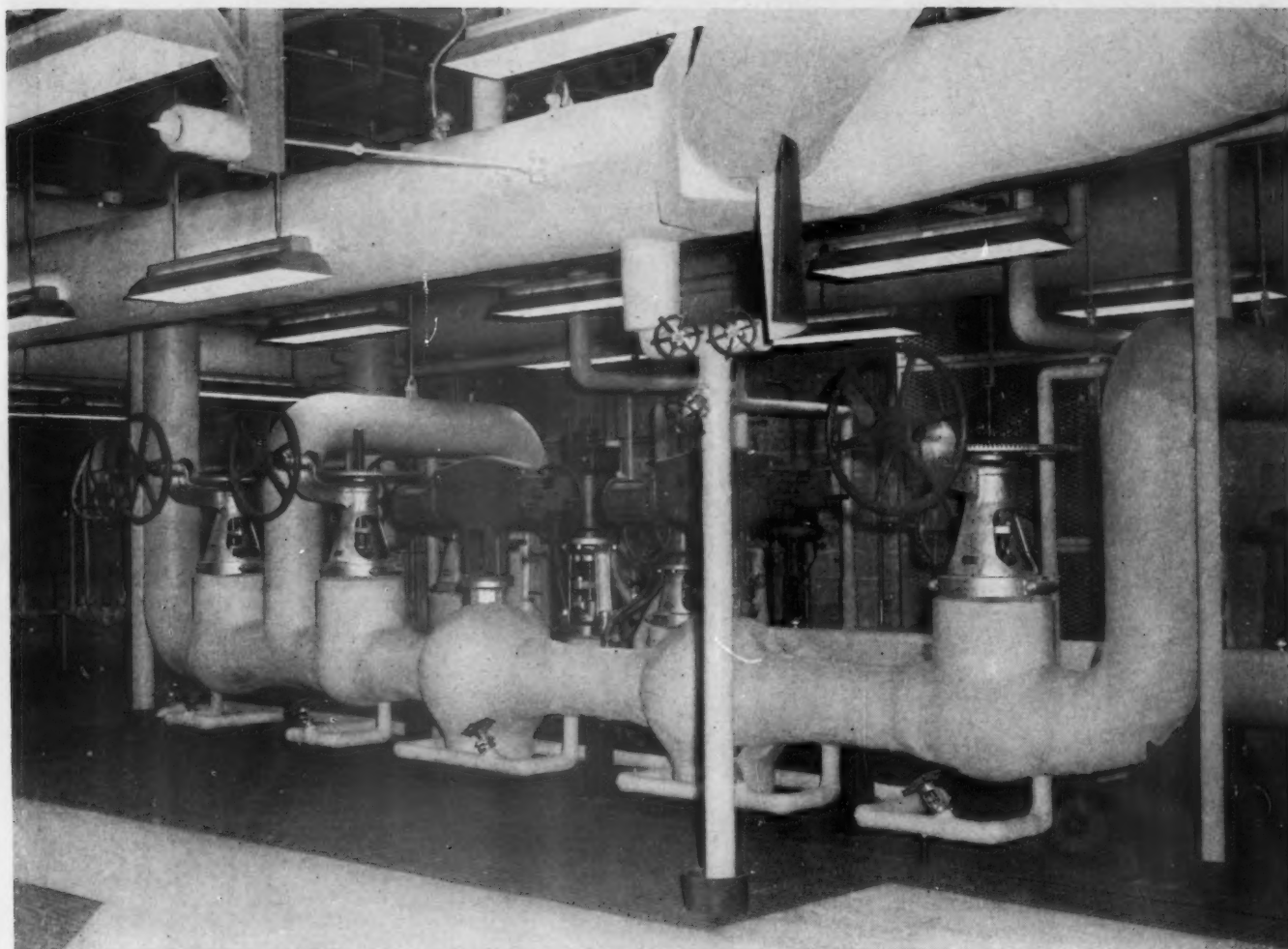


WRITE FOR YOUR DISTRIBUTOR'S
NAME AND OUR COMPLETE
CATALOG OF HEAD AND EYE
SAFETY EQUIPMENT



For More Information Circle No. 250
on Inquiry Card—Page 17

PURCHASING



Shown are the main steam piping (above) and the boiler-feed-water flow-regulating valves (below) at Pennsylvania Power & Light Company's Martins Creek Steam Electric Station, Martins Creek, Pa.—another installation of K&M Insulations, saving heat . . . saving fuel . . . saving money.

Is your present insulation still efficient?

HIGHER TEMPERATURES CALL FOR HEAT-SAVING K&M INSULATIONS

If operating temperatures have been increased in your plant, insulations that formerly were adequate may now be costing you many dollars in heat losses every day. As fuel costs rise, heat losses become an ever-increasing expense. For important savings in fuel, heat, and dollars, install K&M high pressure insulations—acclaimed for years for efficient heat conservation.

K&M "Featherweight"® 85% Magnesia and K&M Hy-Temp Insulations last the life of the equipment they serve. They withstand moisture, vibration, frequent temperature changes. "Featherweight" efficiently insulates piping and equipment at temperatures to

600° F. For efficiency to 1900° F., Hy-Temp and "Featherweight" are applied in combination, with staggered joints. This eliminates the heat loss that normally occurs in single-layer installations when expansion causes joints to open.

Where moisture is a problem, K&M "Featherweight" Water-Resistant Magnesia Insulation is especially effective. It is used where temperatures rise to 450° F.

Check your operating temperatures, then contact your K&M distributor—an experienced applicator—for details about the heat-saving K&M insulations your plant should have. Or write directly to us.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA



NOW no bead,

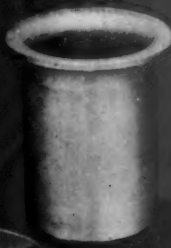


Photograph of Contour-Welded FIPB Schedule 10 Size Type 304

CONTOUR-WELD PIPE...BEST BY ANY TEST YOU CAN NAME

Reverse Bend

11 1/2" O.D. x .154 wall



Flare and Flange



Uniformity

Flattening



Pressure (Tubing)

no undercut

in new type welded stainless steel pipe

Now, TRENTWELD is better than ever! Thanks to Trent's new patented *Contour-Weld** process, you can now get stainless pipe or tubing that's really smooth inside... free from any undercut or projecting weld bead.

Check these Benefits

As before, this new-type TRENTWELD is made from uniformly rolled stainless strip. That's why you'll always get extremely high uniformity both of wall thickness and curvature. And Trent's new

Contour-Welding brings that same uniformity to the weld zone itself. This means a stronger pipe or tube with smoother flanged or flared ends... no cavitation corrosion or erosion... better performance in every category than with any other, welded or not.

Try new Trent *Contour-Welded* pipe or tubing for yourself. It's a natural for pressure lines... lines carrying corrosive chemicals... high-velocity systems. And remember, it's made by Trent—tube-mill specialists.

Why Trent's Exclusive Contour-Weld Process Means Smoother Welds . . .



With conventional welding, gravity means beads . . . or undercut, particularly in heavy sections. Gravity pulls some of the molten metal down into the pipe to form a bead that is extremely difficult to remove by cold working. And cold working of the inside bead can lead to undercuts, focal points for erosive and corrosive attack. Cleaning becomes difficult.



With new Contour-Welding, gravity means smoothness. Trent's new *Contour-Welding* puts gravity to work. The pipe is inverted, and welded at the bottom. Gravity still pulls the molten metal down — but that simply makes the weld-bead contour correspond to the contour of the pipe itself. That's why there's no tell-tale bulge of weld metal on the critical inside surface. And even on the outside, the weld bead more closely approaches that of the parent metal than other welded pipe.

Contour-Weld is the trade mark of the Trent Tube Co. for its process of welding pipe and tubing which is protected under U.S. Patent 2,716,692.

TRENTWELD

STAINLESS STEEL TUBING

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of CRUCIBLE STEEL COMPANY OF AMERICA)

For More Information Circle No. 252 on Inquiry Card—Page 17



Twice the performance at half the cost!

The Jacobs Model 91 Spindle Nose Lathe Chuck delivers from two to four times more torque than any split steel collet chuck and costs less than half as much on a complete-with-collets basis.

Here is the performance of the Jacobs Model 91:

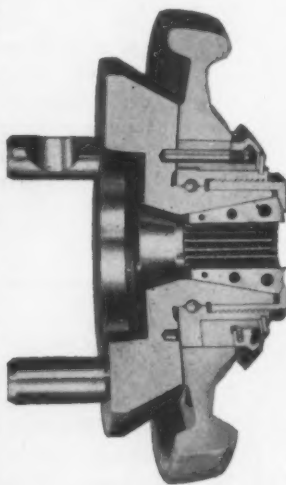
Unequalled Gripping Power. Model 91 has 2 to 4 times the grip of present split steel collet chucks.

Capacity. Model 91 chucks any bar between 1/16" and 1-3/8". 11 Rubber-Flex collets cover the gripping range of as many as 88 steel collets formerly needed.

Unequalled Accuracy. Model 91 is the most accurate collet chuck in the world today.

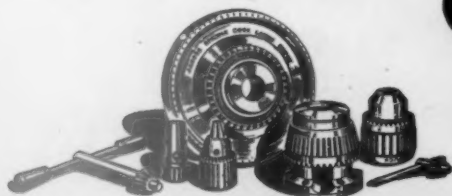
Durability. Model 91 has a solid aluminum hand wheel. The forged body and all other chuck parts are hardened and ground alloy steel.

The Spindle Nose Lathe Chuck and the complete line of Jacobs Chucks are stocked and sold by industrial distributors everywhere. See yours, or write Jacobs Manufacturing Co., 1912 Jacobs Road, West Hartford 10, Conn. Ask for Bulletin 54A-LC.



JACOBS AND YOUR LOCAL DISTRIBUTOR

are ready to deliver the chucks you
need and the service you deserve.
first in chucks . . . first in service



Jacobs

CHUCKS

If it's a Jacobs—it holds

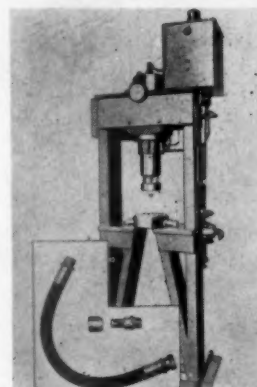
new products

Starters That Improve Lamp Performance

Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y., announces two new fluorescent lamp starters. One is an automatic reset unit to be used with 20-watt lamps. Designated Robot COP, it automatically rests itself after cutting a defective lamp out of circuit. It is for hard-to-start conditions. The second starter, the FS4-TG is equipped with both a thermal and glow switch. It is for high voltage conditions.

Circle No. 55 on Inquiry Card—Page 17

Short-Cutting Hose Assembly Service

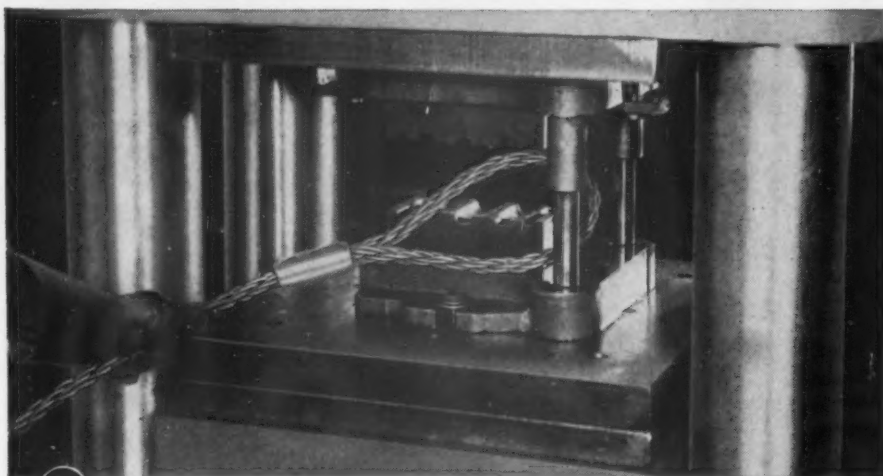


Heretofore, hose assembly orders, placed by industrial plants and other power equipment users, were filled by the original equipment manufacturer. This often resulted in an unavoidable and costly time lag. Weatherhead Co., Fort Wayne Div., 128 W. Washington, Fort Wayne, Ind., is now making it possible for industrial hose line users to get immediate service on any hose assembly service requirements. Weatherhead engineers have developed a new swaging press which enables the company's distributors to make any hose assembly in five minutes or less, in their own shops. The new press will swage hose sizes from 1/4" to 2" ID with male pipe, female swivel or male J.I.C. hose ends. A complete size range of 45°, 90°, and straight swivel adapters is also available.

Circle No. 56 on Inquiry Card—Page 17

For More Information Circle No. 253
←on Inquiry Card—Page 17

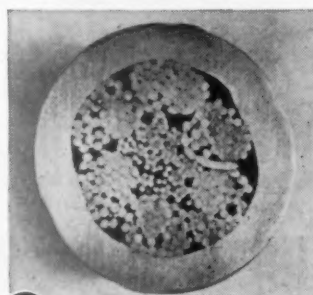
NEW Tuffy FERRULE GIVES EYE SPLICE STRENGTH OF Tuffy SLING FABRIC



1 TREMENDOUS PRESSURE of this machine in swaging Tuffy's smooth-edged metal ferrule around the tuck splice virtually flows the metal into the braided fabric interstices.

Good Man To Know— Your Tuffy Distributor

Tell him your requirements. Then let him save you the time, trouble, and money of carrying an inventory. He will stock the Tuffy Slings you want and Tuffy Hoist Lines to team up with your Tuffy Slings.



2 The force of friction set up by compressing the ferrule metal on more of the wire fabric surface forms an eye that really stays spliced.

No Increase in Cost For Smoother, Safer Factory Ferrule Splice

In the most important sling development since Tuffy machine braided wire was introduced, Tuffy now offers sling users greater safety, faster sling handling, and more sling-eye strength—at no increase in price.

It's all made possible by a new steel ferrule used on all Tuffy Slings. This ferrule, slipped over the splice of the eye and pressed on under great pressure, holds so tight that it gives the eye of the sling 100 per cent of the strength of the machine braided wire fabric. The tucked-in splice is completely covered—the swaged ends of the ferrule leave no abrupt edges to catch on loads or to injure workers' hands.

Teamed up with the Tuffy machine braided sling fabric, this new ferrule makes Tuffy the sling handler's favorite for every job.

New Tuffy Sling Handbook FREE — Mail Coupon Now

This big 60-page book tells you all about new factory-fitted Tuffy Slings with our pressed-on ferrule and contains complete information about a full line of factory-fitted Tuffy Slings, nearly a dozen new standard fittings, and complete data and charts on all Tuffy Slings. It also has a brand-new engineer's notebook and a valuable rigger's manual. Send for your copy now. No obligation.

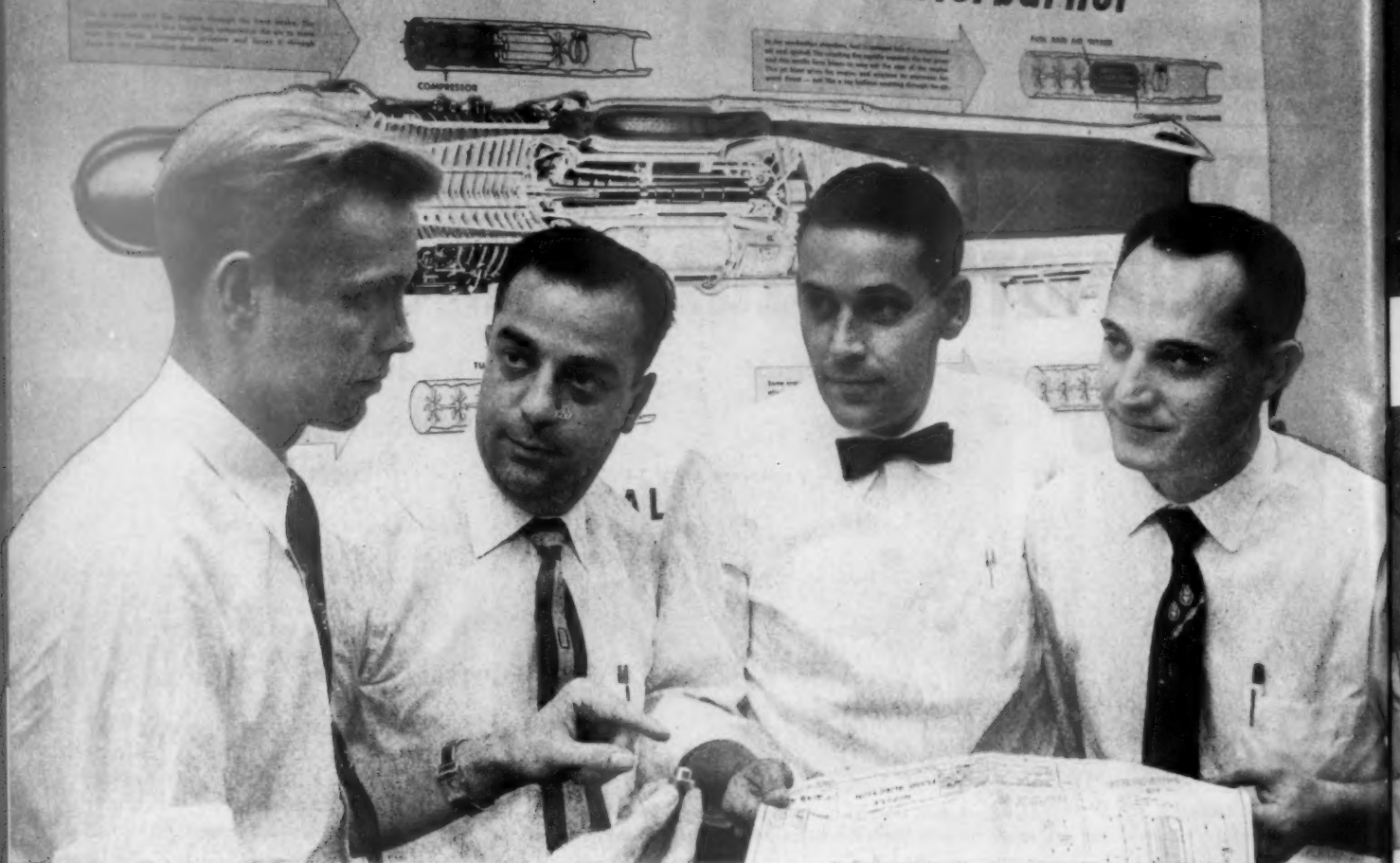


union Wire Rope corporation

Specialists in high carbon wire, wire rope, braided wire fabric, stress relieved wire and strand.
2282 Manchester Avenue, Kansas City 26, Missouri

MY NAME _____ TITLE _____
COMPANY NAME _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

J47 JET ENGINE with afterburner



EARLY JOB PLANNING preceded production of the G-E J47 nozzle. Here, David Nelson, design engineer; Felix Scopelliti,

production manager; William F. Steinen, president; and Ernest Tedesco, quality control director, discuss contract.

Industry benefits as G-E defense subcontractor adapts new-found skills to peacetime production

Co-operation on defense jobs between General Electric and small Newark business firm leads to new machine designs and techniques—now available to other industries

Since 1907, the William Steinen Manufacturing Company of Newark, New Jersey, had been growing slowly as a producer of screw machine parts and metal stampings. With the Korean War, however, defense subcontract orders from General Electric required swift production changes, and the small company responded with imagination and efficiency.

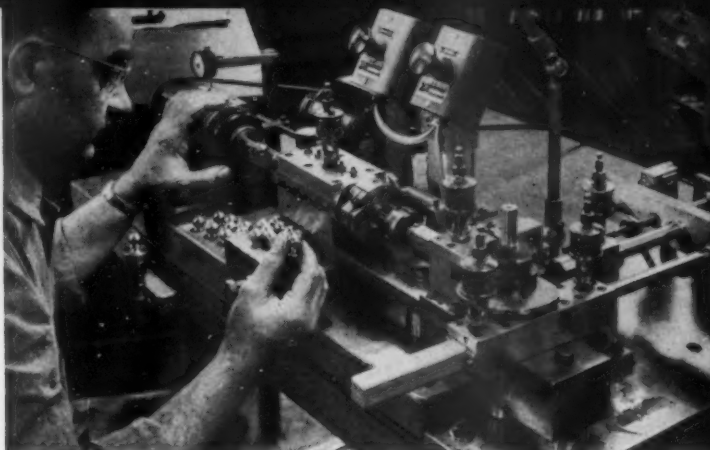
One tremendous challenge was the requirement of extremely close tolerances for G.E.'s J47 jet engine nozzle. To fulfill the requirement, Steinen hired more expert personnel, enlarged its engineering staff, designed new machines. Result: reduced unit cost, delivery on schedule, high quality, and more G-E contracts. At present Steinen is engineering and developing nozzles for even more advanced G-E engine projects.

With growth came new abilities. Exacting G-E contracts meant much more than a greatly increased employee roster and added machines. It meant the development of new skills, versatility, and capacity. And today—even though Steinen sales will hit an all-time high of \$1,900,000 in 1955—less than 10% of this is defense work. The company has smoothly switched the bulk of its production to peacetime industrial needs.

A proving ground for industrial production. G-E defense contracts have helped many small businesses "grow up" to the American economy's expanding needs. In a climate of peace, these companies are adapting to the stretch-out of defense orders from the Korean peak, matching their new capacities and standards to the demands of industry—an excellent example of large and small business co-operating for mutual benefit. 649-4



TRIPLED PRODUCTION resulted from this Steinen-built machine which cross-drills three wiring holes in jet nozzle bodies at one time, instead of singly.



ELIMINATING A SLOW HAND OPERATION, and reducing costs, this machine was specifically designed by Steinen for precision reaming of holes in jet nozzles.



MODERN PACKAGING developed by Steinen utilizes clear plastic tube in which nozzle assemblies have high visibility, and are easily selected.



SWIFT GROWTH required expanded accounting and purchasing department. William Steinen, Sr., (in vest) founded company forty-eight years ago.



VOLUME PRODUCTION on short notice is possible at Steinen because a large variety of metal stocks is always on hand in company's storage areas.



EXHAUSTIVE TESTING, such as this test of nozzle's spray angle, enables Steinen to meet the rigid standards set by General Electric and other prime contractors.

CAN SMALL BUSINESS HELP YOU?



Thousands of small businesses, like the William Steinen Mfg. Co., have furnished General Electric with practically every kind of skill and services as defense subcontractors and suppliers. Many of these companies have available production capacity, created in large part by the reduction of defense orders since the Korean War peak. This means that they may be able to apply their skills to help you with your production.

If you have a manufacturing problem or have work available for subcontracting, please write us on your letterhead stating in as much detail as possible the type of services or skills you require. We will be glad to suggest several small businesses who have done similar work for us and may be able to help you. Write to C. W. Bryant, Manufacturing Services Division, General Electric Co., 570 Lexington Ave., New York 22, New York.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

**LESS
REBOUND**

per pound

thanks to

"Contact Control"

C/R Jawhead

**the best "soft" hammer
you can buy!**

◆ **CHANGE FACES
IN SECONDS**

Threaded collar locks
new faces securely in
place. They cannot
slip, loosen or fly off.



C/R Jawhead hammers, mallets and mauls are available from your local industrial supplier.

Special processing of the tough, resilient rawhide in C/R faces, controls the rebound to permit longer contact with the striking surface. This means C/R Jawhead hammers transmit greater pound force easier—do more work with fewer blows. SAFER for delicate parts and finishes, C/R water buffalo faces will not spark, crack, mar surfaces or soften during incessant use or temperature variations.

COST LESS than most comparable "soft faced" striking tools. C/R Jawhead hammers also have proved more durable under severe and continuous heavy industrial use. And they cut costs through increased safety, speedier work and reduced worker fatigue.

CHICAGO Rawhide MFG. CO.

1301 Elston Ave.

Chicago 22, Illinois

In Canada: Distributed by Super Oil Seal Mfg. Co., Ltd., Hamilton Ontario

For More Information Circle No. 256 on Inquiry Card—Page 17

**new
products**

**New Way to Check
Surface Roughness**

A new principle is embodied in an inexpensive surface comparator which permits metal surfaces to be compared with a selected standard for roughness under 10-power magnification. It greatly emphasizes surface irregularities. It illuminates both the known standard and the piece under study. When looking into the 10-power eyepiece, the user sees a circular image, half of which is standard and the other half the sample being checked. A comparison can thus be quickly made, using commercial roughness standard strips. The comparator, made by Bausch & Lomb Optical Co., 625 St. Paul St., Rochester, N. Y., will speed up work of setup and production men and quality control inspectors.

Circle No. 57 on Inquiry Card—Page 17

**New Process Minimizes Beads
on Welded High Alloy Pipe**



Trent Tube Co., East Troy, Wis., a subsidiary of Crucible Steel Co. of America announces a new welding process which, it is claimed, will revolutionize the method of manufacturing stainless steel and high alloy tubing and pipe. It is said to reduce or eliminate a problem that has hitherto plagued the industry, namely, the weld bead on the inside diameter of the tubing after welding, which made it difficult to produce high quality pipe after cold working operations.

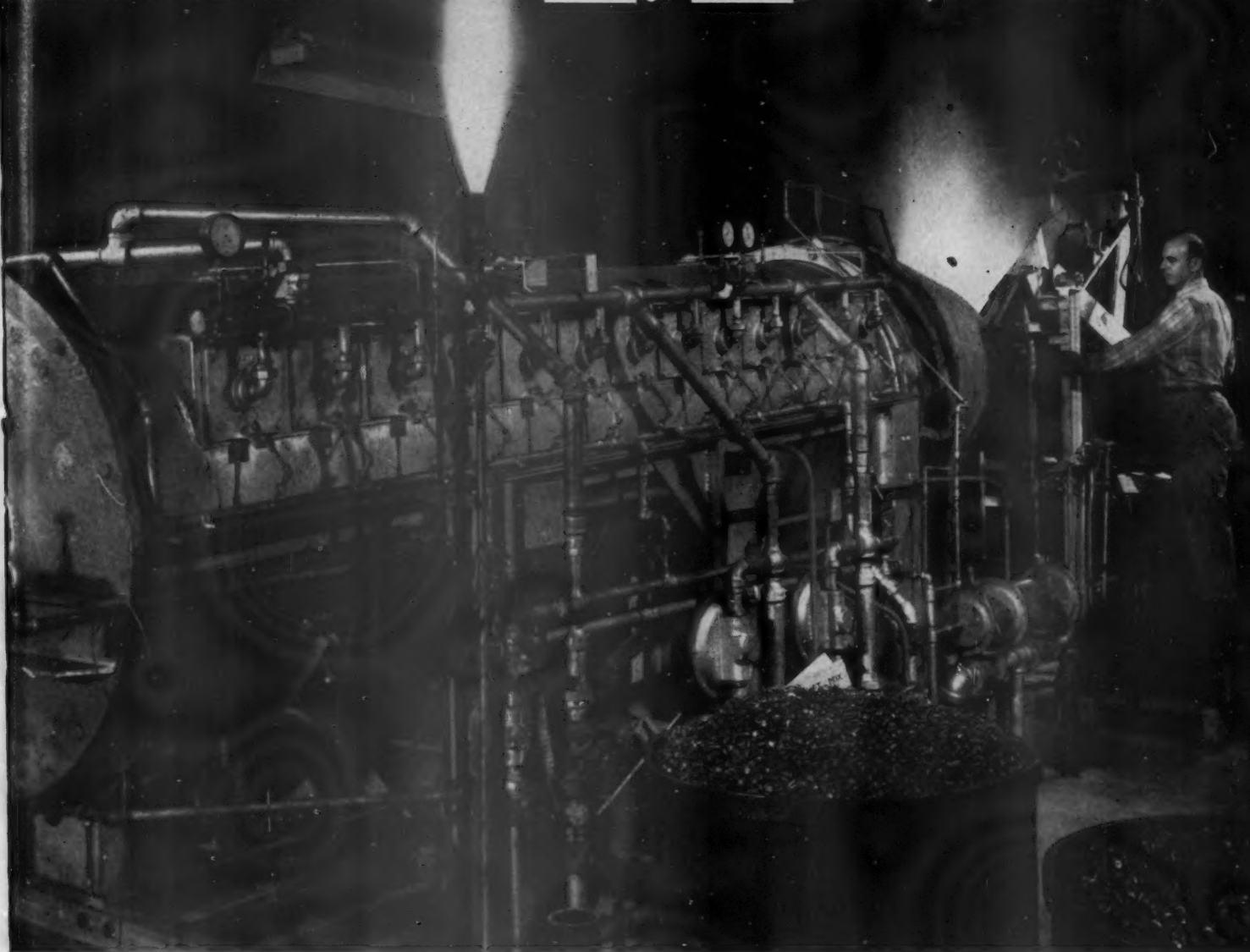
Even in the as-welded condition, the tube has a perfectly smooth and flawless interior surface. The OD weld bead can be held uniform and it is possible to reduce it by swag-
(Please turn to page 176)

For More Information Circle No. 257
on Inquiry Card—Page 17→

PURCHASING

RB & W FASTENERS -

Strong Point of any assembly



Gas chamber for fasteners that lengthens their life

CARBURIZING of fasteners is being done here . . . GAS carburizing. This method stands head and shoulders above the bath type treatment. It gives greater control of surface hardness, of quality.

Above, Gene Luzzi, has just loaded a hopperful of *Spin-Lock* screws into the chamber. Heated and then quenched under his experienced eye (11 years with RB&W), the screws emerge with deeper, more uniform case hardness, and controlled core strength. RB&W hinge pins, tapping screws and other fasteners get their longer life in this department.

If there's a better method or some extra special equipment that can help turn out the best fasteners possible, you're sure to find it in RB&W plants. With the most modern and complete facilities available, RB&W's skilled operators — many of whom are second generation RB&W men — can put their experience to best advantage.

This combination of facilities, experience and quality control can't miss. It assures you more quality for your money . . . a reliable source of supply . . . and strong fasteners that never let you down.

Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N. Y.



Plants at: Port Chester, N. Y., Coraopolis, Pa.; Rock Falls, Ill., Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver; Seattle. **Distributors** from coast to coast.



YOU CAN SAVE

by packaging **SMALL** parts
as well as **LARGER** items

in CLEVELAND CONTAINERS

- No. 1 — The container in the background is a 3-piece metal end telescope for packaging an assortment of items such as bushings, collets, shafts, rods, etc.
- No. 2 — A 3-piece curled and disced container for the packaging of hearing aid batteries.
- No. 3 — A plain fibre can used in the packaging of a small roller bearing with the part number embossed in the top cap.
- No. 4 — A 2-piece curled and disced telescope container for the packaging of taps, reamers and drills. This container can be used to package products of various lengths having the same diameter, by extending the container to the required length.

FOR FURTHER PROTECTION, these containers can be lined with special barrier papers or films. Outer decorative and printed papers also may be applied for identification.

WRITE for complete packaging folder.

Why pay more? For Good Quality . . . call CLEVELAND!

THE CLEVELAND CONTAINER COMPANY

6201 BARBERTON AVE., CLEVELAND 2, OHIO

PLANTS AND SALES OFFICES:
CLEVELAND
DETROIT
CHICAGO
MEMPHIS
LOS ANGELES
PLYMOUTH, WIS.
JAMESBURG, N. J.
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ABRASIVE DIVISION
CLEVELAND

SALES OFFICES:
NEW YORK CITY
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ROCHESTER, N. Y.
WEST HARTFORD, CONN.

• ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS • SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LTD.
Plants & Sales Offices: TORONTO AND PRESCOTT, ONT. Sales Office: MONTREAL

new
products

(Continued from page 174)

ing and so improve the mechanical properties without undesirable secondary effects. The new tubing and pipe have much better fabrication properties in the production of tube assemblies, heat exchangers, condensers and boilers. The extremely smooth inside offers a better surface for the rolling in of tubes in tube sheets. For the first time, many of the high alloys can now be rolled into tube sheets.

The production of cold drawn tubing for aircraft hydraulic lines, fuel lines, pneumatic lines and tubing for small heat exchangers requires a starting stock of the highest quality. Tubing welded by this new method offers excellent starting stock for these applications. These extremely smooth surfaces greatly minimize the possibility of fatigue failures and make better joints with flare type fittings.

Circle No. 58 on Inquiry Card—Page 17

Capacious Waste Receptacle



Brown Co., 150 Causeway St., Boston 14, Mass., is manufacturing a waste receptacle that is claimed to hold 40 times as much waste paper as the ordinary receptacle. It contains an automatic tamper that is operated each time a foot pedal opens and closes the disposal door. Instead of letting it gather loosely in the receptacle, the tamper compacts the waste into a tight bale.

Circle No. 59 on Inquiry Card—Page 17

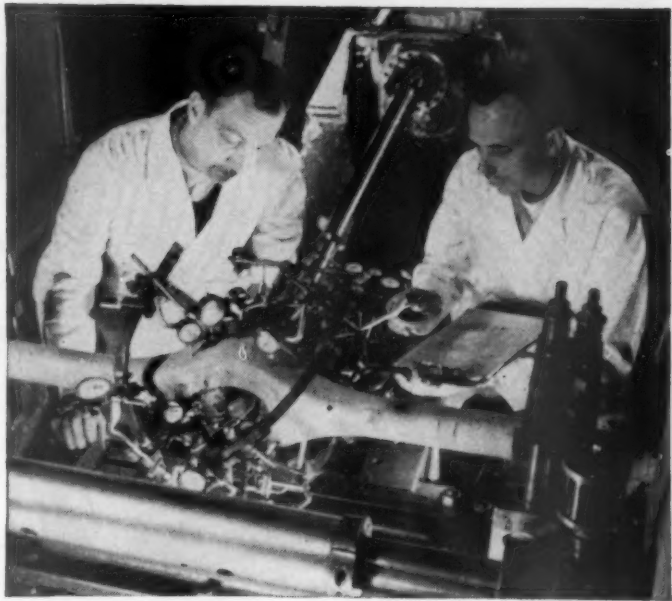
There's safety in numbers like this



THE NUMBER HM89410 on the cup—and HM89446 on the cone of this bearing tell you it's a certain type and size of tapered roller bearing. But a top P. A. knows it's his safest buy when he sees the trade-mark "Timken®" beside the number. That means *extra* quality and service from the bearing and its maker.



WE MAKE CHECKS IN 3D with this universal measuring machine. It measures the length, width and depth of machine and gage parts. Accurate to fifty-millionths, it's another example of how far we go to put precision into our bearings—to help make them the number 1 value for *your* product and a big selling point for it, too.



SERVICE LIKE THIS is part of the value you get when you specify Timken bearings. Through our extensive bearing application testing service, we catch trouble before it happens—in the design stage. Customers then get written reports with recommendations. For instance, stiffening housings or shafts or changing to other sized bearings.



WE PUT EVERY ROLLER under a magnifying glass to search for surface flaws—another inspection that helps assure the *same* high quality in *every* Timken bearing. Quality, service and public acceptance make Timken bearings your number 1 value. Specify "Timken" with the bearing number. The Timken Roller Bearing Company, Canton 6, Ohio.

Quality, service and public acceptance make TIMKEN number 1 for VALUE

TRADE-MARK REG. U. S. PAT. OFF.

NOT JUST A BALL  NOT JUST A ROLLER  THE TIMKEN TAPERED ROLLER  BEARING TAKES RADIAL  AND THRUST  LOADS OR ANY COMBINATION 

DECEMBER, 1955

For More Information Circle No. 259 on Inquiry Card—Page 17

177



Mor-Grip v-belts



FHP



MULTIPLE



SUPER RATED



STEEL CABLE



OPEN END



HEX BELTS



V-LINK

Maurey engineers v-drives for every situation; the "stop and go" spurts of refrigeration drives; the pulsating, high torque loads of rock crushing; the smooth, steady-pull of textile drives... for short centers, and wide range of speed ratios. Maurey V-drive equipment has proved its value since 1917, improving the performance, and increasing the sales of thousands of products. Maurey delivers pulleys, belts and accessories quickly from complete stocks. Whether you are designing a new v-drive or improving an old one, contact Maurey. Call your local Maurey Distributor, or write direct.

Request these catalogs



Write to

Pulleys, Sheaves V-Drive Accessories



1-GROOVE CAST IRON



PRESSED STEEL



4-GROOVE CAST IRON



VARIABLE PITCH



STEEL SHAFT COLLARS



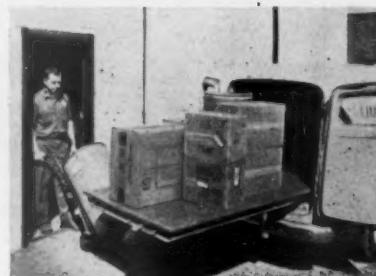
REFRIGERATION FANS



Q-D SHEAVES

new products

Rolling Deck Speeds Truck Loading



A device completely eliminates the back-breaking labor of crawling in and out of truck to load or unload. Essentially, the unit is a second floor which rolls in steel channels. A light pull rolls it to several locking positions or to full extension. Fully extended, it will bear a 1½ ton load. With the device extended, the load is simply lifted into place from any one of three sides. As a result, the entire load, or any part from front to rear, is instantly accessible. Construction is of steel bracing, with heavy plywood deck and sturdy roller bearings running in a steel channel. The Rol-Loader Corp., Dept. 0-2, 5461 Ridge Rd., Parma 29, Ohio, is the manufacturer.

Circle No. 60 on Inquiry Card—Page 17

Extra Fine, Flat Wire for Precision Applications

The Hamilton Watch Co's Allied Products Division at Lancaster, Pa., announces that it is now in commercial production of extremely fine, flat wire, held to extremely close tolerances of thickness width and uniformity of cross section. The wire can be produced from most of ferrous and non-ferrous alloys, except ones difficult to cold-work. It is available from a maximum size of .019" in overall width and .010" thick down to a minimum size of .003" in overall width and .0007" thick. Some of the suggested applications of this ultra fine wire are for springs in precision timing elements, in high precision electrical and aneroid instruments and in high sensitivity electrical relays.

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For More Information Circle No. 261 on Inquiry Card—Page 17→

PURCHASING

maurey manufacturing corp.

2903-27 50. WABASH AVE. CHICAGO 16, ILL.

For More Information Circle No. 260 on Inquiry Card—Page 17

All-weather Brown thermocouple head saves time and trouble

Like the other function-designed supplies in the Brown pyrometer accessories line, the screw type thermocouple head is engineered for the top in utility and convenience.

It can't freeze or rust. Threads are cut on the *inside* of the head, where they are protected from external moisture and corrosive atmospheres. The threads are plated and enameled *after* machining . . . to assure that a complete protective finish covers the thread surfaces. The entire head is hot dip galvanized and enameled for maximum weathering properties. A heat and moisture resistant gasket seals the thermocouple and extension wire connections from the damaging effects of outside atmospheres.

It's built for convenience. You need no special tools. The slotted head makes it easy to remove or to tighten the head without using a wrench. A chain connects the head to the base . . . prevents waste of time for recovering a head that drops off.

It's versatile. It can accommodate terminal blocks for either single or duplex thermocouples or resistance thermometers.

It uses standard pipe thread outlets, and is interchangeable with other heads.



The Brown screw type thermocouple head is recommended for outdoor service, and for applications where atmospheres are corrosive. Its general versatility, however, makes it useful in so many other installations that you should consider it for any spot where thermocouple connections may give trouble. Your local HSM will be glad to look over the requirements of your specific location, and to help you choose the type of thermocouple head that best fits the job.

Here's why it pays to know your



HOWARD PALMER, at right, HSM (Honeywell Supplies Man) in the Philadelphia area, tells Philip Keidel, General Manager of Robert Wooler, Dresher, Pennsylvania about the corrosion-proof construction of Brown Screw Cover Type Terminal Heads for thermocouples.

The HSM Plan for buying pyrometer supplies not only assures you of getting the best in quality from the complete line of Brown accessories . . . but, through personalized analysis of your specific problems, it places all your supplies purchasing on a planned basis that can cut your inventory needs, simplify your paper work, and often reduce overall costs substantially.

Ask your local HSM to discuss how this plan can operate in your own plant. Call him at your nearby Honeywell office . . . as near as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR Co., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.



MINNEAPOLIS
Honeywell
BROWN INSTRUMENTS

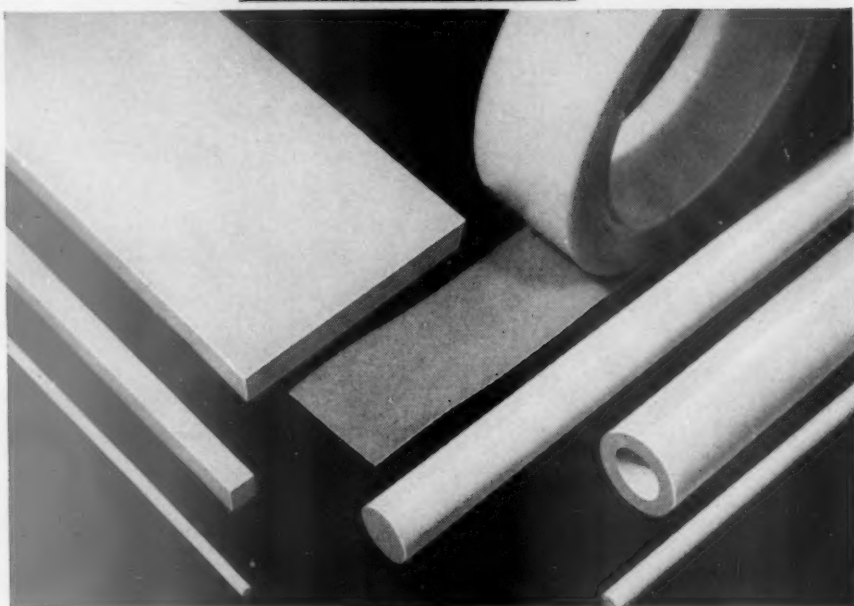
First in Controls

● REFERENCE DATA: Write for the booklet, "The HSM Plan" . . . and for Pyrometer Supplies Buyers' Guide No. 100-8.

POLYPENCO®

NYLON

SHAPES



Depend on POLYPENCO Nylon Shapes For Uniform High Quality

● As a result of rigid quality controls and close laboratory supervision, POLYPENCO Nylon Shapes give you *extra* advantages to facilitate your production and maintain your own high standards of quality.

GAIN TRUE NYLON PERFORMANCE

You get the benefit of *all* of nylon's desirable properties in POLYPENCO production, for POLYPENCO Nylon has uniform density and is processed to eliminate internal stresses and strains.

CLOSER CONTROL OF PARTS PRODUCTION

Because nylon parts can be machined from POLYPENCO shapes on standard metalworking tools in your own shop, direct control over parts production is a simple matter. Production schedules and quality control fall under your direct supervision, and at the same time you eliminate the extra costs of molding dies.

NO LAG IN PRODUCTION

POLYPENCO Nylon Shapes—available in rod, bar, tubular bar, strip or slab—are stocked in convenient sizes for immediate shipment. Expanding warehousing facilities assure prompt delivery to keep your production in high gear.

Latest technical bulletins will be sent promptly in answer to your request.

THE POLYMER CORPORATION of Penna. • Reading, Penna.
In Canada: Polypenco, Inc., 2052 St. Catherine W., Montreal, P. Q.

POLYPENCO

nylon, teflon* and other non-metallics

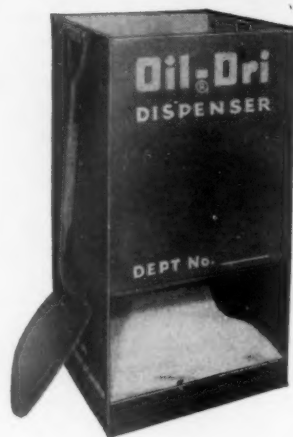
Warehouse stocks:

Atlanta • Boston • Buffalo • Chicago • Cleveland • Dayton
Detroit • Fort Worth • Indianapolis • Los Angeles • Minne-
apolis • Montreal • New Haven • Reading • St. Louis • Toronto

For More Information Circle No. 262 on Inquiry Card—Page 17

new
products

Dispenser Permits Re-Use of Oil Absorbents



The Oil-Dri absorbent dispenser for "on the spot" safety from slippery floors is available now at a reduced price. A slot-type release in the unit drops absorbents to the floor of the dispenser. A side mounted bracket holds shovel or scoop. A screen atop the dispenser enables absorbents to be re-used. Floor sweepings are poured through this screen which filters foreign materials while the absorbents drop back into the dispenser. A product of the Oil-Dri Corp. of America, 520 N. Michigan Ave., Chicago 11, Ill., Oil-Dri absorbs oils, greases and acids and reduces fire hazards.

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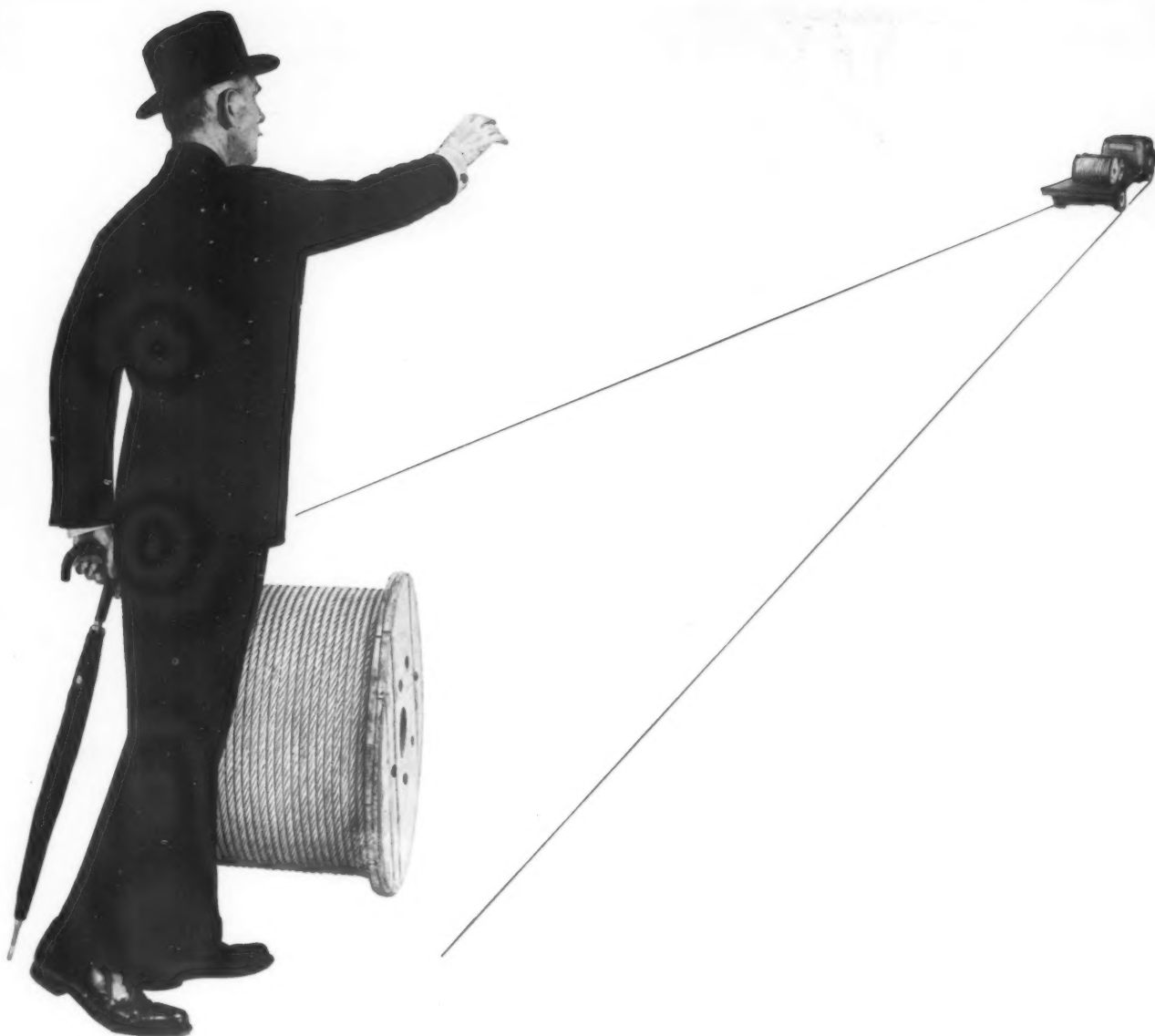
Cleaner Overcomes Hard Water

Two compounds for spray washing cleaning of ferrous and non-ferrous metals have been developed by the Detrex Corp., Detroit, Mich. The compound for cleaning ferrous metals, Detrex 58, has sequestering agents built into the product to overcome hard water conditions and assist in removing hard water scale without foaming problem commonly encountered. The compound for cleaning non-ferrous metals, such as brass and aluminum, Detrex 59, is a highly buffered product which eliminates etching and reduces tarnish.

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For More Information Circle No. 263
on Inquiry Card—Page 17→

PURCHASING



YOUR WICKWIRE ROPE DISTRIBUTOR SAVES YOU DOWN TIME

When the lack of the proper wire rope halts your production or your operations, thank your lucky stars that your helpful Wickwire distributor is only a quick phone call away. It's a wonderful feeling...to know you'll be getting exactly what you need from his warehouse stocks in only a few hours time.

Now contrast that with the cost in time, money and inconvenience of emergency shipments direct from a distant manufacturer.

In addition to saving on down time, your Wickwire distributor effects further economies by recommending the wire rope that will give you the longest service life, by minimizing your bookkeeping, inventory maintenance and transportation costs. He keeps your reserve stocks for you so that you don't tie up capital in stand-by materials, warehouse space and unnecessary stock insurance and handling.

Your Wickwire Rope distributor is a good man to know. He's quality people handling quality products. Buy your wire rope and slings from him. You'll find that the many valuable services he offers far outweigh any apparent price advantage you might gain by buying direct.



A PRODUCT OF THE COLORADO FUEL AND IRON CORPORATION

Practical Idea for the Production Man

Efficient electric hoists...to move materials overhead and release floor space for more valuable operations.



CM LODESTAR ELECTRIC CHAIN HOIST

$\frac{3}{8}$ to 1 ton capacities—First truly heavy duty version of small electric hoist. $\frac{3}{4}$ ton model weighs only 51 lbs. Heavy duty self-adjusting brake. Upper-lower safety limit switches. CM-Alloy load chain.

CM METEOR ELECTRIC WIRE ROPE HOIST

$\frac{1}{2}$ to 5 ton capacities—Compact, enclosed design. Low headroom. Continuous duty motor with thermal overload protection for heavy duty service. Precision bearings and helical gears for long life. Only 110 volts at push button control.

CM HOISTS



Good
Suggestion
for the
Maintenance
Man!



Rugged lightweight hand hoists and pullers...to make your job easier and safer

CM CYCLONE HAND HOIST

$\frac{1}{4}$ to 10 ton capacities—Easy to carry and lift. One ton model weighs only 36 pounds. Made of tough aluminum alloy. CM-Alloy load chain. High efficiency. Lifetime lubrication.

CM PULLER THE "ONE MAN GANG"

$\frac{1}{4}$ to 6 ton capacities—Lifts or pulls at any angle. Lever handle operation. Automatic load brake holds at any point. $\frac{3}{4}$ ton model weighs only 13 pounds. CM-Alloy flexible load chain.

ALSO... CM Trolleys and Cranes

Call the CM distributor for descriptive literature, prices and fast delivery from stock.



CHISHOLM-MOORE HOIST DIVISION

COLUMBUS McKINNON CHAIN CORPORATION

TONAWANDA, NEW YORK

REGIONAL OFFICES: NEW YORK, CHICAGO, CLEVELAND

In Canada: McKINNON COLUMBUS CHAIN LIMITED, ST. CATHARINES, ONTARIO

For More Information Circle No. 264 on Inquiry Card—Page 17

new
products

Tier-Type Rack Offers Adjustment Latitude



Rack Engineering Co., 180 Sixth St., Connellsville, Pa., is marketing a tier-type rack which may be erected quickly to suit any multiple of openings with the added feature of different shelf widths on variable vertical placements. This permits packing the rack to an almost solid cube, regardless of the shape or weight of the contents. The design also provides a protection factor without special attachment. The unit has a base of tubular and channel members, with or without heavy duty casters. Shelves may be of masonite, steel or expanded metal. The unit is available in basic sizes of 36" x 36"; 40" x 48"; 48" x 48" and 48" x 60".

Circle No. 64 on Inquiry Card—Page 17

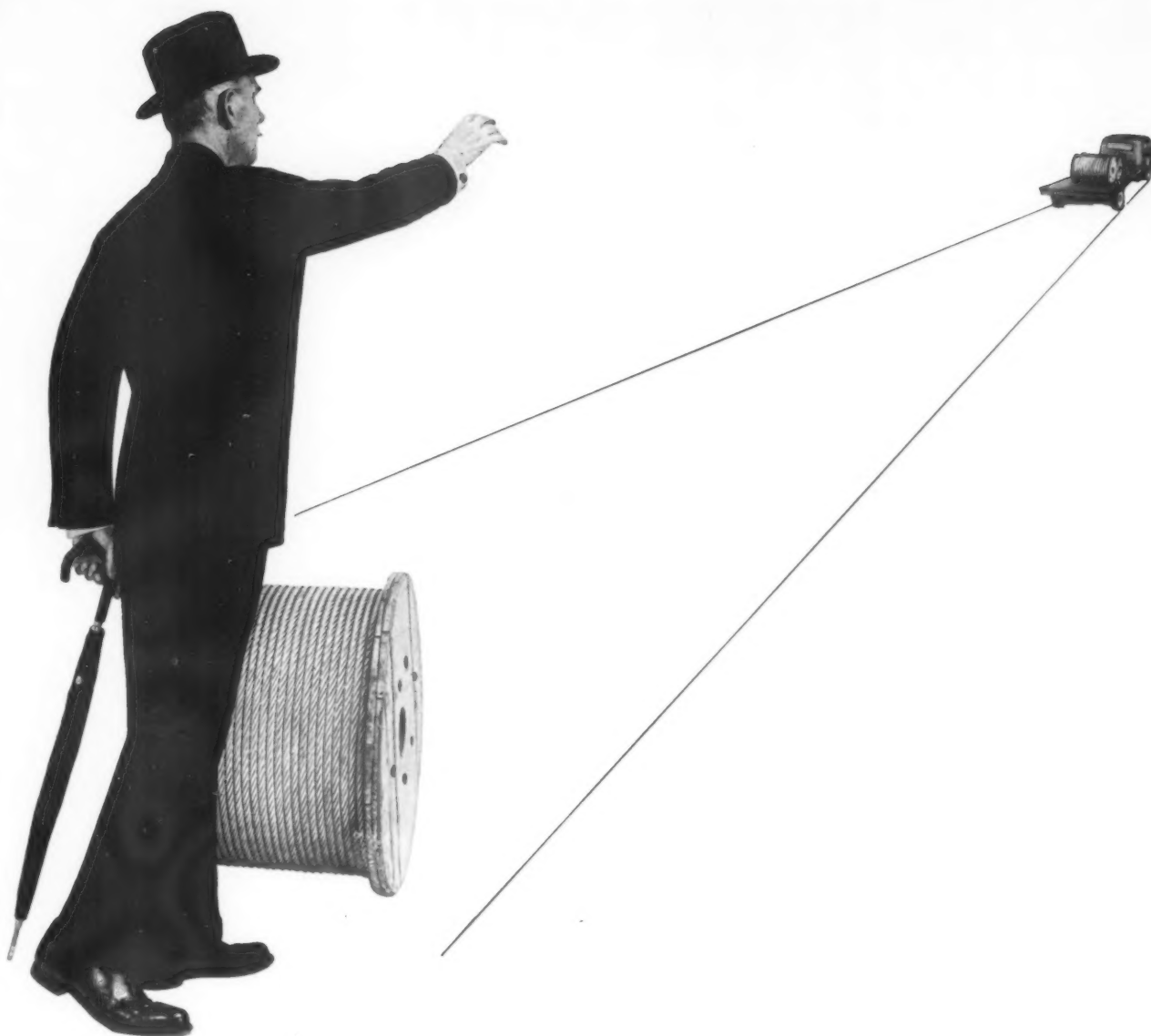
Cloth Tape Replaces Friction Tape

A new black production grade, pressure sensitive cloth tape, Permacel 64, sticks better to its own backing and application surfaces than the old friction tape, while having twice the insulating resistance. It is also thinner than friction tape and builds up less bulk in multiple wraps. It is available in $\frac{3}{4}$ " width and 60' or 90' lengths on 1 $\frac{1}{2}$ " diam cores. It replaces friction tape in such applications as bundling assemblies of loose parts; binding coils of wire, cables and piping; sealing bags, cartons, etc. It is a product of The Permacel Tape Corp., New Brunswick, N. J.

Circle No. 65 on Inquiry Card—Page 17

For More Information Circle No. 265 on Inquiry Card—Page 17→

PURCHASING



YOUR WICKWIRE ROPE DISTRIBUTOR SAVES YOU DOWN TIME

When the lack of the proper wire rope halts your production or your operations, thank your lucky stars that your helpful Wickwire distributor is only a quick phone call away. It's a wonderful feeling...to know you'll be getting exactly what you need from his warehouse stocks in only a few hours time.

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In addition to saving on down time, your Wickwire distributor effects further economies by recommending the wire rope that will give you the longest service life, by minimizing your bookkeeping, inventory maintenance and transportation costs. He keeps your reserve stocks for you so that you don't tie up capital in stand-by materials, warehouse space and unnecessary stock insurance and handling.

Your Wickwire Rope distributor is a good man to know. He's quality people handling quality products. Buy your wire rope and slings from him. You'll find that the many valuable services he offers far outweigh any apparent price advantage you might gain by buying direct.



A PRODUCT OF THE COLORADO FUEL AND IRON CORPORATION

Practical Idea for the Production Man

Efficient electric hoists...to move materials overhead and release floor space for more valuable operations.



CM LODESTAR ELECTRIC CHAIN HOIST

$\frac{1}{8}$ to 1 ton capacities—First truly heavy duty version of small electric hoist. $\frac{1}{8}$ ton model weighs only 51 lbs. Heavy duty self-adjusting brake. Upper-lower safety limit switches. CM-Alloy load chain.

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Good
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for the
Maintenance
Man!



Rugged lightweight hand hoists and pullers...to make your job easier and safer

CM CYCLONE HAND HOIST

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$\frac{1}{4}$ to 6 ton capacities—Lifts or pulls at any angle. Lever handle operation. Automatic load brake holds at any point. $\frac{1}{4}$ ton model weighs only 13 pounds. CM-Alloy flexible load chain.

ALSO...CM Trolleys and Cranes

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COLUMBUS McKINNON CHAIN CORPORATION

TONAWANDA, NEW YORK

REGIONAL OFFICES: NEW YORK, CHICAGO, CLEVELAND

In Canada: McKINNON COLUMBUS CHAIN LIMITED, ST. CATHARINES, ONTARIO

For More Information Circle No. 264 on Inquiry Card—Page 17

CM HOISTS

new
products

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Circle No. 64 on Inquiry Card—Page 17

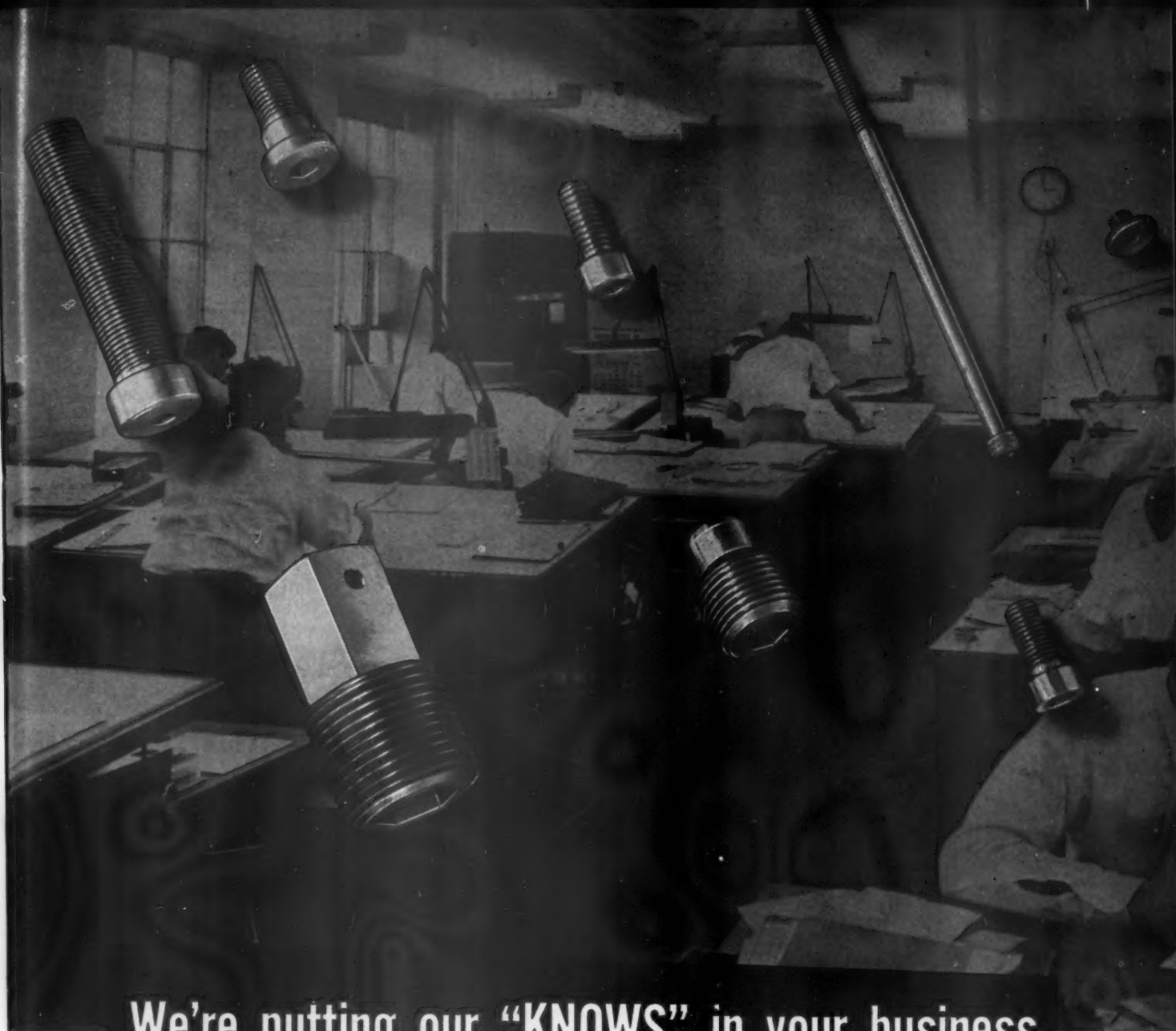
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Circle No. 65 on Inquiry Card—Page 17

For More Information Circle No. 265 on Inquiry Card—Page 17→

PURCHASING



We're putting our "KNOWS" in your business

Allen engineers solve a problem a day... for socket screw users

Allen has always been headquarters for socket screw know-how. Last year, Allen metallurgists, designers and engineers teamed up to handle over 360 technical problems for precision fastener users.

Most of these problems were quickly answered over the phone... many required a trouble shooting engineering team to consult with the manufacturer, analyze his problem

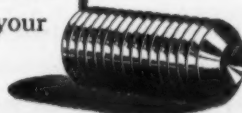
and design special products for his use...some were even concerned with our competitor's products. But each problem, no matter how simple or complex, was solved to the manufacturer's satisfaction.

When you've got a question on socket screws, let our engineers help you. They're socket screw specialists ready to put their "knows" in your design problems.

When ordering through your
local Industrial Distributor,
specify genuine
Allen Socket Screws

ALLEN

MANUFACTURING COMPANY
Hartford 2, Connecticut





Identical brass ingots now . . . or a year from now

Your order for specification brass today and your order for the same brass a year from now will be identical. Every heat of brass that Federated pours is carefully and repeatedly analyzed. Quality control at Federated is not just an occasional check, but is a regular step in every phase of our production program.

If your castings are hard to pour, or if they are designed for difficult, specialized service, this quality control is important to your customers. They must know that every order you fill will be identical so that they can buy from you with complete confidence.

Federated has a foundry service organization that can help you with any casting problems. Experts who know the cause of casting failures are available to visit your foundry and make corrective suggestions. And backing up these experienced servicemen is a complete, modern, non-ferrous metals laboratory that can trace the cause of trouble right back to its source.

Take advantage of these Federated extras. So many foundries do that we are known as Headquarters for Non-Ferrous Foundry Metals and for technical information on foundry problems. We have 13 plants and 23 sales offices across the country. Any of them will be pleased to help you.

Federated Metals

DIVISION OF AMERICAN SMELTING AND REFINING COMPANY
120 BROADWAY, NEW YORK 5, N. Y.

In Canada: Federated Metals Canada, Ltd., Toronto and Montreal



Aluminum, Anodes, Babbitts, Brass, Bronze, Die Casting Metals, Lead and Lead Products, Magnesium, Solders, Type Metals, Zinc Dust

For More Information Circle No. 266 on Inquiry Card—Page 17

new
products

Impact-Proof Clamp Protects Shipments

An impact-proof clamp for transit cases, shipping and storage containers, incorporates multiple 70 lb springs to cushion shocks. The springs are never over-stressed in use. Featuring a large pick-up range, the clamp does not require precise mounting. It operates easily and positively under all weather conditions, according to the makers, the Bassick Co., Bridgeport 2, Conn. It is currently manufactured for recessed applications but the design can be modified for embossed or ribbed installation.

Circle No. 66 on Inquiry Card—Page 17

Automated Screw Feeding and Driving Device



A portable device is said to make possible for the first time "automated" feeding and driving of screws and other fasteners in many industries. It eliminates all hand placing screws by automatically and almost instantaneously delivering screws from a hopper to a unique head mounted on a standard portable power screwdriver. The head grips screws in such a way that they may be driven at any angle in any plane. Although the device is basically designed to augment existing hand-operated equipment, it is equally adaptable to complete automation. It handles almost any size and type of screw and the hopper holds enough screws for four hours' work. Pneuma-Serve, Inc., 19930 Detroit Rd., Cleveland, Ohio, make it.

Circle No. 67 on Inquiry Card—Page 17



DELIVERY

is important

Specify Bishop Stainless Steel Tubing

When crucial delivery dates mean a profit or a loss, specify Bishop because you can depend on Bishop delivery dates for quality stainless steel tubing in small diameters (.008"-1" O.D.).

Yes, Bishop, master craftsmen of precious metals since 1842, and the first American company to successfully draw small diameter stainless steel tubing, can assure meeting your delivery dates with the finest quality stainless steel tubing you can buy.

Next time, particularly if delivery is important to you, specify Bishop and be sure!

Platinum and Platinum Group Metals
Stainless Steel Tubing
Tubular Fabricated Parts
Spinnerettes
Hypodermic Needles and Syringes



J. BISHOP & CO. Platinum Works • Stainless Steel Division • Malvern, Pa.

3 important reasons
you should use
STAR "Moly"
High Speed Steel Blades



1 They outlast standard
steel blades 10 to 1!

2 They assure high speed
cutting performance
second to none.

3 They are substantially
lower in cost than any
other type high speed
steel blades!

Star was the first to successfully use molybdenum to make "Moly"® High Speed Steel Blades that would be tough, carry the load, retain sharpness and embody all the other high qualities and properties of heavy-duty blades. Order "Moly" High Speed Steel Blades from your Industrial Distributor. Rely on him for *all* your metal-cutting needs. Remember, he carries the complete line of STAR Hand and Power Hacksaws, Metal and Wood Cutting Band Saws and Hacksaw Frames.

FREE

Ask your Industrial Distributor
for a supply of our NEW Metal
Cutting Booklets and Wall Charts.



Sold Only Through
Recognized Distributors

CLEMSON

CLEMSON BROS., Inc.
MIDDLETOWN, N. Y., U. S. A.

Makers of Hand and Power Hacksaw
Blades, Frames, Metal and Wood Cut-
ting Band Saw Blades and Clemson
Lawn Mowers.

For More Information Circle No. 268
on Inquiry Card—Page 17

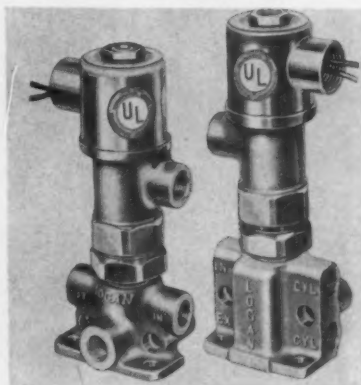
new
products

Air Cooled Bias Buffs

A different type of air-cooled bias buffs has been introduced by James H. Rhodes & Co., 157 W. Hubbard St., Chicago 10, Ill. It features a 45° angle fabric biasing which results in 23% more strong warp fibres per inch of fabric on the working surface of the buff, and one-way warp direction for maximum cutting and polishing efficiency. Uniform convolution pleats, which produce a wiping action, give better fabric distribution and do away with down time for balancing polishing heads. Forced ventilation through air scoops in the center of buff produces a cooling action in operation.

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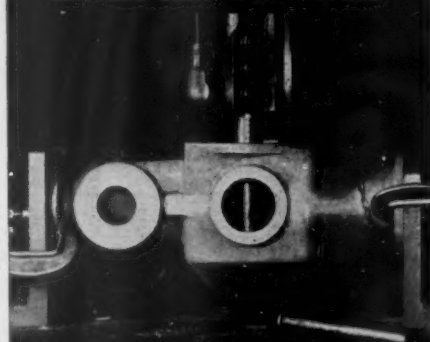
Air Control Valves For Many Applications



Logansport Machine Co., Logansport, Ind., says that its model 6668 solenoid bleeder, air cylinder-actuated 2- or 3-way valve has been designed for electric push-button, limit switch, timer, etc., control of bleeder and pilot-operated master valves. Model 6669 dual-control 2-way valve is a similar type to model 6668, except that it has 2 exhaust openings to permit bleeding of both master valve simultaneously. This provides automatic reversal when electric current to the solenoid is turned off. Model 6678 4-way, 2-position valve is electric push-button, limit switch, timer, etc. controlled for operating double-acting air cylinders.

Circle No. 69 on Inquiry Card—Page 17

33% DECREASE IN DIE WEAR
ON THIS GRAY IRON FITTING



...thanks to

FERROCARBO®

Users everywhere report similar experiences. In fact, on 67 machining tests in 11 large machine shops, castings of gray iron treated with FERROCARBO averaged 89.5% greater machinability per tool than untreated castings. These premium castings are finer-grained, denser, stronger, yet they **COST YOU NO MORE**...because your foundryman, using FERROCARBO, makes worthwhile savings in raw material costs.

FOR FREE BOOKLET on FERROCARBO, citing actual case histories of faster machining, with longer tool life, write The Carborundum Company, Dept. 35, Niagara Falls, N. Y. 64-00

CARBORUNDUM®

For More Information Circle No. 269
on Inquiry Card—Page 17

BOWERS
BATTERIES

*Always
Better*

BOWERS BATTERY & SPARK PLUG CO., READING, PA.

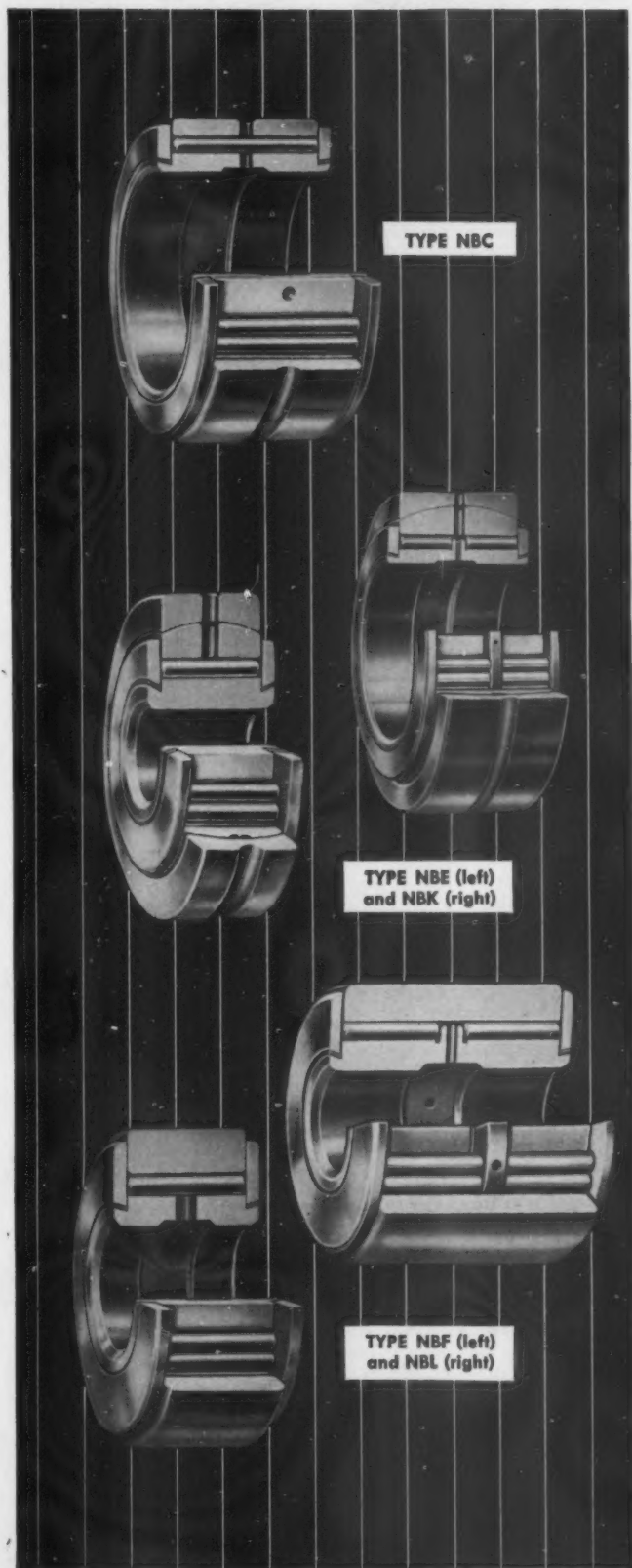
For More Information Circle No. 270
on Inquiry Card—Page 17

PURCHASING

TORRINGTON

NB SERIES NEEDLE BEARINGS

For Oscillating Motion or Heavy Rolling Loads



Torrington NB Series Needle Bearings employ the same needle roller principle as the famous DC Type Bearing.

They are available in the five types illustrated, all being of nonseparable construction and designed for periodic relubrication. Outer and inner races are of high carbon, chrome steel, hardened and precision ground.

Like the DC Type, the compact design of NB Series Needle Bearings permits saving in size and weight of surrounding parts.

Torrington NB Series Needle Bearings have been used extensively in the aircraft industry and for ordnance work where their extremely high static capacity and anti-friction characteristics enable them to withstand heavy impact loads.

Designs can be modified to meet industrial applications involving rotating motion.

Type NBC—oscillating motion only. Designed specifically for applications in which the OD is supported by a housing and the washers are backed up by clamping surfaces.

Types NBE and NBK—oscillating motion only. Self-aligning. Designed for applications where it is difficult to obtain alignment during assembly or where deflections make a self-aligning bearing desirable.

Types NBF and NBL—heavy rolling loads. Designed for use as rollers under heavy loads at slow speeds.

See our new Needle Bearing Catalog in the 1955 Sweet's Product Design File—or write direct for Catalog No. 55.

THE TORRINGTON COMPANY

Torrington, Conn.

South Bend 21, Ind.

District offices and distributors in principal cities of United States and Canada

TORRINGTON *NEEDLE* BEARINGS

Needle • Spherical Roller • Tapered Roller • Cylindrical Roller
Ball • Needle Rollers

office equipment

and supplies

A desk-chair mat is available from **Ace Lite-Step Co., Chicago**. As its under surface, the desk-chair



pad has a spring-rubber waffle design for non-skid grip to the floor or carpet. Its top surface is conventional smooth rubber for easy glide and durability. It is available in both round and rectangular shapes and in solid colors of office grey, executive green, maroon, and black.

Circle No. 70 on Inquiry Card—Page 17

A new deluxe line of **steel files** for handling active and master-deck tab cards has been announced by **Diebold, Inc., Canton, O.** They have positive compressors designed to hold the cards flat and keep them in perfect shape for use in sorting machines. Chrome-finished handles provide safe handling of drawers as well as harmonizing with the standard chroma-gray and olive finishes of the files. Nylon bearings are used for smooth drawer operation and long life. And, a carry bar at the rear of the file makes it easy to transport loaded drawers without danger of spilling the cards.

Circle No. 71 on Inquiry Card—Page 17

The **Eagle Pencil Co., New York**, is introducing the first **Grade 1½ pencil** ever manufactured. Softer and blacker than the popular Grade 2, and longer lasting than the Grade 1, the new **Mirado pencil** writes boldly on onion skin and newsprint without tearing.

Circle No. 72 on Inquiry Card—Page 17



Collamatic, Wayne, N. J., is introducing a new, low-cost, **electric collator**. Called the "Model 1600 Duplex", it is equipped with two fingertip starters, each activating its own individual set of eight bins. The importance of this feature is that the machine can be operated by one operator, to collate from 2 to 16 pages at one time, or by two operators, to collate two separate jobs that require the collating of from 2 to 8 pages each. The bin capacity is for a full ream of paper, allowing longer collating periods without repeated reloading.

Circle No. 73 on Inquiry Card—Page 17

A complete new line of metal **Techniplan partitions** is being manufactured by **The Globe-Wer-**



nicke Co., Cincinnati. They are available in three heights (42¾", 54¾", and 66¾") and in seven standard widths (12", 26", 34", 46", 52", 60" and 68"). Each height and width partition is available with a choice of three styles of top panels—glass, acoustical, or steel—and with open or closed bases. All partitions, too, have provisions for concealed wiring and for electrical outlets and switches. An additional feature of the line is the introduction of three heights of doors.

Circle No. 74 on Inquiry Card—Page 17

A modern, low-cost, two-to-ten station **inter-office telephone system** that offers the advantages of a telephone communication combined with two-way loud speaker station, voice paging conference circuit, and bell signals for noisy areas, is being introduced by the **Connecticut Telephone and Electric Corp., Meridan, Conn.** The unit, called "Direct-A-
(Please turn to page 194)

Remington Rand

BETTER BUSINESS METHODS

For Greater Profits
Through Lower Costs

Increase Efficiency And Reduce Office Costs In 1956

New Developments In Business Tools Stress Motion-Economy

Remington Rand continues in the forefront of the trend to *motion-economy* in American business. This is reflected in the design and development of a wide range of products which have *motion-economy* features built in.

Office management executives and department heads rely increasingly on purchasing officials to keep them abreast of the latest developments in office machines, equipment and supplies which might be advantageously used. Here is new information which may be helpful.

NEW ROTO-KARD*...speeds reference to card records...most advanced *drum* housing...saves



space, reduces work load... up to 6,000 record cards in less than 3.6 square feet... *electric or manual operation!* Ask for booklet KD770.

NEW KARD-VEYER*...electrically powered... 16,000 to 80,000 vertically filed cards (including punched tabulating cards)...

saves finding, posting, and filing time — and space! Ask for LBV706. For users of still larger,



active card records there is Convé-File*... any one of 200,000 cards positioned electrically. Ask for LBV160.

NEW REMINGTON ELECTRIC TYPEWRITER.... the typewriter that turns out more work in less time, with less effort, is now available in these 6 attractive pastel shades: French Gray, Desert Sage, Mist Green, Honey Beige, White Sand and Lime-Light. No matter what your decor, there's a color to harmonize beautifully. Ask for RE8764.

NEW ARISTOCRAT* DESKS... are plus-engineered for functional efficiency, long term value and beauty of modern styling. Available in three colors — Surf Green, Heather Beige and exclusive Gray-Rite. Unit type of construction permits tops, drawers and pedestals to be easily reassembled to meet varying requirements. Ask for F187.

NEW KOMPACT* FILES... "the file with the extra drawer"... 5-drawer Kompakt is no higher than a regular 4-drawer file... 6-drawer Kompakt is comparable to a 5-drawer file... counter-height Kompakt has 4 instead of 3 drawers... and so on. Save up to 50% of your costly filing floor space! Ask for LBV692.

NEW TRANSCOPY* With New Chemical Discovery NR555

... produces four or more sharp photoprints from one negative... offers sensational time and dollar savings wherever there is a need for multiple photocopies of the same original. Ask for free demonstration of new NR555.



NEW PLASTI-PLATES*... provide premium quality offset plates at low-cost... Pre-Sensitized for photo-offset reproduction — ask for DS108... Direct Image for all copy and line drawings — ask for DS57.

*Trade Mark

Remington Rand

DIVISION OF SPERRY RAND CORPORATION
Room 2245, 315 Fourth Ave., New York 10

Kindly send literature circled:

KD770	F187
LBV706	LBV692
LBV160	NR555
RE8764	DS108
	DS57

Name & Title _____

Firm _____

Address _____

City _____ Zone _____ State _____

P-14



A few years ago, an office designed like this would have been termed "futuristic". But, at the National Business Show, this model office is made up of regular items available from several different manufacturers.

Efficiency And Automation Featured At Business Show

FOR more than half a century, the National Business Show in New York has recorded progress in the office equipment field. The 1955 edition of this show, sponsored by the Office Executives Association of New York, continued in this light.

It might be said that the show ran from A to X (accounting systems to xerographic duplicating). Yet, despite the variety of items displayed, the basic theme was the steady improvement of office opera-

tions for greater efficiency, more speed, and lower over-all costs.

This year, equipment in the duplicating and dictating fields were predominant. As with other shows, it is nearly impossible to accurately describe the importance of each piece of equipment on exhibit. Yet, certain items, either through their newness or departure from "standard" systems, create long lasting impressions. There were many at the 1955 National Business Show,

but only a few can be quickly reviewed.

One of the big drawing cards at the show was the brand new office offset duplicator of Ditto, Inc., Chicago. This machine, the first completely automatic offset duplicator specifically for office use, operates at speeds up to 8,000 copies per hour. It can run off as few as one copy, or as many as 25,000. One simple keyboard controls its inking, moistening, paper feeding, and impression. Its self-regulating paper feeder handles stock ranging in thickness from lightweight to heavy card stock, intermingled. It feeds from the front and delivers finished copies, face up, at the front also. The machine is 26" wide by 32" long, weighs only 340 lbs., and uses both paper and metal offset plates.

At the exhibit of Addressograph-Multigraph Corp., Cleveland, several new and improved machines were on display. One, the Addressograph Transfer Printer Model 831 proved of considerable interest to the show's visitors. This machine uses a continuous form master, prepared by tabulator, typewriter, add-



Interested spectators carefully examined the new Ditto Offset Duplicator specifically designed for office use. The first completely automatic machine for this use, it promises to open new fields and improve old methods of office offset work.

Mushrooming in size and importance during the past decade, the dictating equipment field has become a predominant factor in improving office operations. The display of Infra Electronic Corp., Roseland, N. J., showed their new equipment.



ing machine, etc., to produce quality imprints on unit forms. It makes it possible to feed and imprint automatically envelopes, checks, broadsides, folders, etc., at speeds of 7200 or more per hour. The Model 831 replaces paste-on labels with the appeal of direct imprints.

A photocopying machine that is claimed to take the guesswork out of making copies, was the "star" of the American Photocopy Equipment Co., Chicago, display. Called the Dial-A-Matic-Stat, it has an illuminated dial which is set to match the type of original to be copied. Measuring 24" by 9" by 5", it takes paper up to 15" wide and produces its copies in 30 seconds.

A newcomer in the field of dictating machines was Infra Electronic Corp., Roseland, N. J. Their booth exhibited the Infra "Director" dictating machine and its companion transcribing unit. Completely portable, the Director is the lightest of all disc dictating-recording instruments, weighing only 8½ lbs. It uses plastic recording discs, in two sizes, for 7½ minutes or 15 minutes

(Please turn to page 192)

Applying established copying equipment to systems functions of specialized office operations was the feature of the display of the Ozalid Division, General Aniline & Film Corp., Johnson City, N. Y. Order-Billing was demonstrated at this set up.



Which of these many



Baltimore Business Forms



can you use to modernize



your operations?

How long has it been since you've looked over your present forms. Or have you just overlooked them, without connecting changing conditions at your company with the need for changed systems? A thorough analysis of your operation by a Baltimore Business Forms expert can pay unexpected dividends in the form of faster paper work, greater internal efficiency and speedier external communications and deliveries. The experience gained by Baltimore Business Forms in solving countless problems for over 60,000 of the nation's leading business houses can solve yours too. Give us a call or write us—today! There's a handy coupon printed below.

The Baltimore Business Forms Company

(THE BALTIMORE SALESBOOK COMPANY)

Saving time and reducing costs in business and industry

The Baltimore Salesbook Company, 3142 Frederick Avenue, Baltimore 29, Md.
We are interested in seeing samples of Baltimore Business Forms.

Name _____

Company _____

Type of Business _____

Address _____

City _____

Zone _____

State _____

For More Information Circle No. 273 on Inquiry Card—Page 17

Efficiency and Automation Featured at Business Show

(Continued from page 191)

dictation on each side. The discs can be mailed or filed and permanently carry instruction information as to letter length, corrections, etc. The machine records at 33-1/3 rpm, making it possible to play-back the discs on any home record player operating at 33-1/3 rpm.



This large collating machine of Didde-Glaser, Inc., Emporia, Kans., drew considerable attention. Many models of collating machines were displayed, attesting to the increased interest in these time-saving machines.

In the same field, the Business Equipment Division, DeJur-Amsco Corp., New York, showed its magnetic dictation system with its many accessories and high-fidelity reproduction.

And, while no actual electronic computers of Univac size were around, many manufacturers displayed tools clearly defined as im-



Visible records equipment such as displayed by Acme Visible Records Inc., New York, are constant reminders of the continuous search for more efficient, simpler, more flexible record keeping devices.

portant in the preliminary steps to office automation. Monroe Calculating Machine Co., Inc., Orange, N. J., for instance showed an adding machine punching tallies into five-channel tape, a key segment of Integrated Data Processing systems.

Other systems and tools, also, were exhibited as means of in-

Stop writing expensive purchase orders for business cards

Buy your cards on Hill's easy Coupon Order Plan. You'll get the finest cards; you'll save money on your purchase orders. One purchase order brings you a book of coupons. You pay one invoice. When you need cards, simply clip a coupon.

This easy plan used by hundreds of companies.

Want the facts? Write today, tell us how many cards you buy a year; send us a sample card. We'll send you free, detailed information on Hill's popular Coupon Order Plan.

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270 N-26 Lafayette St., N.Y. 12, N.Y.

For More Information Circle No. 274 on Inquiry Card—Page 17

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A personal copy should always be handy for easy reference—ready to help you when you need it.

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creasing office productivity or general efficiency. Royal Typewriter Co., New York, showed its Royal-aligner. This is a special cylinder with a tractor and pins to hold marginally-punched continuous forms in accurate registration. This allows conversion of a Royal Electric back and forth from regular correspondence to special forms work.



The simple steps in making duplicating masters was demonstrated at the booth of Polychrome Corp., Yonkers, N. Y. Every step, from preparation, through transfer, to final printing gave visitors a first-hand view of duplicating work.

Also at Royal was the teaming of a Royal McBee electric systems writer with an adding machine to handle virtually all accounting tasks for small businesses or special departments of larger concerns.

Perhaps the best description of what the National Business Show consists of comes from the greetings of Alwyn W. Ogden, president of the Office Executives Association, in greeting the show's visitors. Said Mr. Ogden, "This annual showcase of office management, its supplies, equipment and services, not only brings to public attention the improvements year by year, but regularly reminds consumers of the excellence of its offerings."

It's pure conjecture as to what will be new in the office equipment field next year. But, one thing is sure, if it improves the efficiency of the office function, it will be at the National Business Show.

FOR FURTHER INFORMATION ON PRODUCTS IN THIS ISSUE PLEASE USE INQUIRY CARD ON PAGE 17

NOW Your choice of shapes in popular RED typists' erasers **SINGLEX**

New 1207 in modern pencil style for single letter erasures. Sharpens like a pencil, too!

Both contain the same soft red eraser compound.



"6587"

Van Dyke Disc shape—America's leading typist eraser

So Gentle

as smooth working on carbons as originals

Trademarks Reg. U.S. Pat. Off.

Since 1849

EBERHARD

FABER

puts its quality in writing

NEW YORK • TORONTO

For More Information Circle No. 275 on Inquiry Card—Page 17

TEST... a Carter's Pump Action Stamp Pad at our expense



...the only
stamp pad
guaranteed to
give 100,000
impressions!

***MORE ECONOMICAL**
because it lasts longer ...
proves you're a smart
buyer 100,000 times.

***PUMP ACTION**
assures uniform inking.

**Clip coupon for your
free stamp pad**

THE CARTER'S INK COMPANY
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At no cost or future obligation, send me
free Carter's Stamp Pad and informa-
tive booklet.

Ink color: (check one) Black ☐ Red ☐
Blue ☐ Green ☐ Purple ☐.

Name

Title

Firm

Street

City State

For More Information Circle No. 276
on Inquiry Card—Page 17

office equipment

(Continued from page 188)

Call", operates from a standard
electrical outlet and uses no bat-
teries or tubes. It requires only a



4" x 6" space. Molded of impact-
resisting, light grey thermoplastic,
it plugs into any 110 v. outlet. It
measures 3-1/16" high, 4 5/8" long,
by 3-5/16" wide.

Circle No. 75 on Inquiry Card—Page 17



**Commercial Controls Corp., Roch-
ester,** has been appointed a distribu-
tor of the **Kodak Listomatic Camera,**
Model 1, made by **Eastman Kodak
Co., Rochester.** Worked in conjunc-
with **Commercial Controls' Justo-**
writer composing machine, it pro-
vides an economic and rapid method
of repetitive correction and publi-
cation of listing, catalogs, price lists,
etc.

Circle No. 76 on Inquiry Card—Page 17

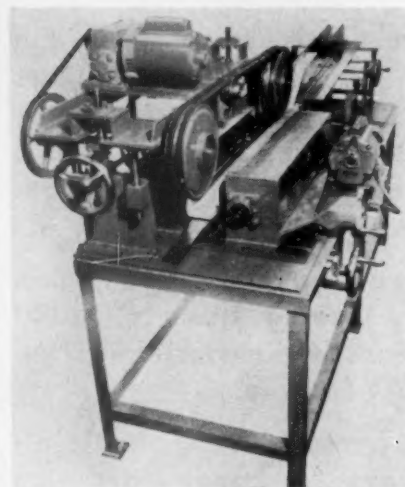
Mass-produced to sell at a very
low price, a new, double-duty **add-
ing-bookkeeping machine** has been
announced by **The National Cash
Register Company, Dayton.** In addi-
tion, standardized **NCR (No carbon
Required)** bookkeeping forms have
been designed for use with the ma-
chine. Described as a "little wizard",
the machine will perform all the
basic bookkeeping tasks in a small



or medium-sized business — ac-
counts receivable, accounts payable,
payroll, general ledger, stock rec-
ords, etc. Interchangeable control
bars enable rapid conversion from
one job to another. A switch at the
left of the "little wizard" changes it
into a normal, flexible-keyboard
adding machine.

Circle No. 77 on Inquiry Card—Page 17

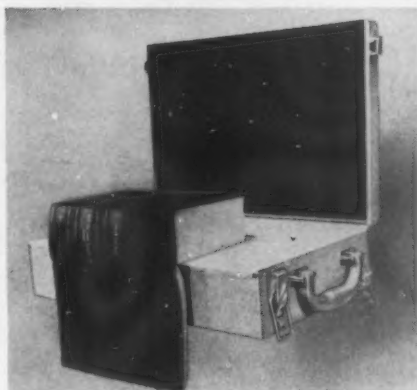
Maintenance costs on adding ma-
chines, teletype and other office ma-
chinery using paper rolls can be
reduced according to the **Machine
Division, The Fuller Brush Co.,
Hartford, Conn.,** manufacturers of
of a **paper roll delinter.** The power
brush machine removes the fuzz or
lint from the ends of score cut paper
rolls, eliminating jamming or poor
operation of adding machines, etc.
It can be adjusted to various size



rolls by the turning handwheels.
Rolls ranging from 1-11/16" to 5 1/2"
in diameter and from 2 1/2" to 8 1/2"
in length are fed into the machine
and passed between two 24" long
horsehair brushes that turn at 1800
r.p.m. The smallest rolls can be
processed at 5,400 per hour, the
largest at 1,000 per hour.

Circle No. 78 on Inquiry Card—Page 17

office equipment



A portable photocopy unit is now available from Copease Corp., New York. It fits into a briefcase and can easily be carried on the job to any location to copy pages in books or any other material which cannot be removed. It has a 9½" by 14¾" copying surface, and weighs only 12½ lbs.

Circle No. 79 on Inquiry Card—Page 17



Precise timing and recording of elapsed time spent on various tasks or jobs is easily accomplished with a new instrument manufactured by the Calculagraph Co., Harrison, N. J. No human subtraction is required; the unit has a "memory" for each of hundreds of job starting times.

Circle No. 80 on Inquiry Card—Page 17

A. B. Dick Co., Chicago, is now marketing a new, electric folding machine. Known as the Model 57, it can be set for any of six folds: single, parallel or letter, accordion or statement, double parallel, French (folds paper horizontally and then vertically), and horizontal and then two vertical folds. Operating instructions permanently



attached to the receiving tray tell the operator how to set the dials for any of the folds. The machine folds at speeds up to 150 copies per minute, and handles duplicating paper, bond, ledger, book, and coated and uncoated paper stocks.

Circle No. 81 on Inquiry Card—Page 17



Classic Calculators, Inc., New York, a subsidiary of Rex-Rotary Distributing Corp., has announced a new "Classic" 10-key printing calculator. It gives fast, short-cut multiplications. It has two registers operating from a single keyboard at the same time and producing separate and distinct totals. (For example: credit and debit columns can be figured simultaneously and the answers will be given separately—resulting in the balance.) As a grand totalizer it produces grand totals from many different groups of additions and subtractions.

Circle No. 82 on Inquiry Card—Page 17

Headphones, of a type different from any other kind, are being marketed by Calfon Corp., Hollywood Calif. Designated model HP-1002, they are remarkably light in weight. They fit under the chin rather than over the head, eliminating interference with hairdos, glasses or earrings. They are equipped with sponge nylon cushions which are easily removed for washing or sterilizing. (Please turn to page 196)

MARK... almost everything with a Carter Marking Ink



Whenever you wish to mark finished products, raw materials, parts, bins, or shipping cases, ten to one you'll find the right ink for the job in Carter's broad line of special marking inks.

Look for the answers to your marking problems in Carter's Marking Guide. It's yours without charge.

-- Clip coupon and mail --

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Dept. B-12, Cambridge 42, Mass.

Send me your free booklet, "Carter's Marking Guide".

Name

Title

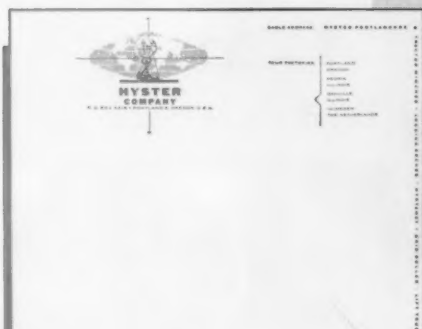
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City State

For More Information Circle No. 277
on Inquiry Card—Page 17

*They call it the
"King" of the lift trucks—
it's Hyster's new RC-150*



Get a lift with **Quality!**

It is a simple matter of fact to important firms like the Hyster Company that an impressive letterhead paper makes good sense and better business. Being quality-minded, they choose Strathmore for its superiority. They write their letters on it with a good deal of corporate pride. You can share this experience—just ask your supplier to show you samples of your own letterhead design on Strathmore.

The Hyster Company is industry's strong right arm! Hyster makes those extraordinarily powerful lift trucks and carriers (Straddle Trucks, Karry Kranes, etc.) you see around industrial plants these days. These are the machines that can lift and move just about anything with the greatest of ease—refrigerators, apples, steel pipings. They save time and they lower handling costs considerably.

STRATHMORE LETTERHEAD PAPERS: STRATHMORE PARCHMENT, STRATHMORE SCRIPT, THISTLEMARK BOND, ALEXANDRA BRILLIANT, BAY PATH BOND, STRATHMORE WRITING, STRATHMORE BOND, ENVELOPES TO MATCH CONVERTED BY OLD COLONY ENVELOPE CO.

STRATHMORE THIN PAPERS: STRATHMORE PARCHMENT ONION SKIN, STRATHMORE BOND ONION SKIN, STRATHMORE BOND AIR MAIL, STRATHMORE BOND TRANSMASTER.

STRATHMORE

Makers of Fine Papers

STRATHMORE PAPER COMPANY, WEST SPRINGFIELD, MASSACHUSETTS

For More Information Circle No. 278 on Inquiry Card—Page 17

office
equipment

(Continued from page 195)



The electronic unit is also removable so the frame can be washed periodically.

Circle No. 83 on Inquiry Card—Page 17

PERSONNEL CHANGES

Royal Metal Mfg. Co., Chicago, has appointed **Bill Sproul** as sales manager of the firm's Office Furniture Division. He was formerly a sales executive with Alma Desk Co. and Hamilton Desk Co. of High Point, N. C.

International Business Machines Corp., New York, has announced the reorganization of its Electric Typewriter Division as a completely autonomous operation with an administrative structure separate from the other divisions of the company. **H. Wisner Miller, Jr.**, sales manager of the old division, is now general manager of the new organization. **Henry W. Reis, Jr.**, former assistant sales manager, is now sales manager, and **Robert H. Rettew** is controller.

Paul S. Nevin, general manager and treasurer, has been elected vice president of **Visirecord, Inc., Copiague, N. Y.**, manufacturers and distributors of visible record-keeping systems.

Marchant Calculators, Inc., Oakland, Calif., has named **Charles E. Martin** as district manager of the Louisville district office. He was previously district manager at Evansville, Ind.

James L. Griggs, formerly vice president-methods and systems, of **Craig Machine Inc.**, has been appointed manager of sales development of the **Remington Rand Division, Sperry Rand Corp., New York**.

steel-pride

LOCKERS and CABINETS

with
JET-LOCK

Construction

Forest
Green
Mist
Green
Desert
Sage
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Gray



offers these advantages:

- FAST ASSEMBLY
- ADDED STRENGTH
- EXTRA RIGIDITY and
- THEY'RE ECONOMICALLY PRICED

JET-LOCK construction means fast assembly since major parts *slide* together—fewer bolts are required for complete assembly. Added strength is assured because side, door frame and components of the Locker and Cabinet are interlocked throughout the entire length of each member by means of tight U-turn linkage at the joints.

Steel-Pride equipment has rigidity too because all mating parts make tight, positive contact along their entire length. And last but by no means least, the price is right. So you see, *feature for feature*, "Steel-Pride" Lockers and Cabinets really do offer more advantages at *no extra cost* to you.



Forest Green
Pearl Gray

SHOP EQUIPMENT TOO!



Green and Gray



If it's Shop Equipment you need—like Foremen's Desks, Service Carts, Drawer Cases, Nesting and Stacking Pans, Shelf Boxes, Tool Stands, Tool Boxes—we make them too. If not available in standard sizes, *we will manufacture it to meet your exact specifications.*

steel-pride

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ATTENTION

Write for name of dealer serving your area.

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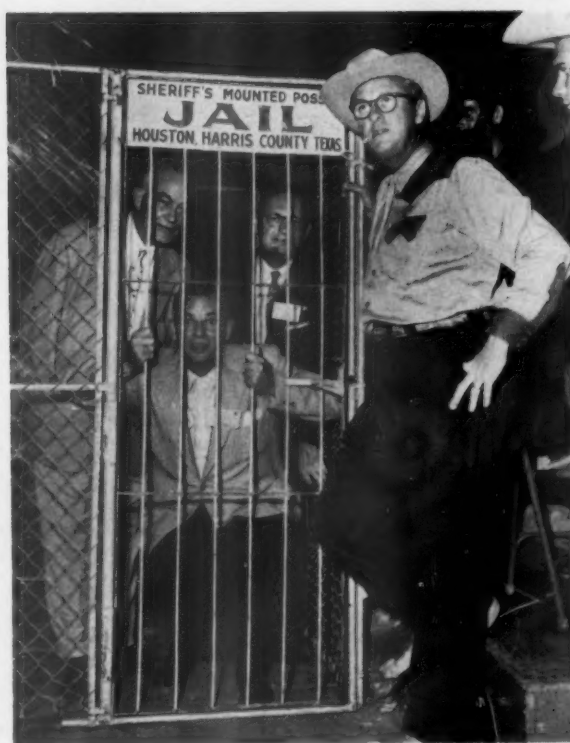
ZONE _____

STATE _____

association news

Heavy Attendance, Top Notch Speakers Mark Southwest Purchasing Conference

George Renard, N.A.P.A. secretary; A. W. Soell, national president; and R. H. "Dick" Lawrence, District Two Vice-President (center), look through the bars of a Texas-style jail, one of the attractions at the By-Lo Bayou party on the evening preceding the opening of the 9th annual Southwest Purchasing Conference of District Two at the Shamrock Hilton in Houston, Oct. 5 and 6. Bernard Paul, president of the Sheriff's Mounted Posse of Harris County, at right, released the "prisoners" when he found out that they were National Association officers. As a part of the evening's entertainment, the Mounted Posse conducted a demonstration of formation and precision riding in the area in front of the Shamrock Hilton. →



Opening the first morning's session of the conference were E. F. Foster, national director of the Houston Association; N. A. P. A. President A. W. Soell, St. Louis; R. H. "Dick" Lawrence, N. A. P. A. vice president for District Two; Howard Tellepsen (at microphone), president, Texas Manufacturers Association; Senator Searcy Bracewell, Houston; Charles W. Dabney, Jr., general conference chairman; and Charles O. Brotherton, president of the host association.

Haylett O'Neill, Jr., of Humble Oil & Refining Co., Houston, program committee chairman, greets E. H. "Buck" Weaver of Union Oil Company of California, Los Angeles, and Vic LeMay of Mid-Continent Supply Co., Fort Worth, at the Southwest Purchasing Conference. Mr. Weaver was a speaker at the conference. Mr. LeMay's company was host to the conference group at breakfast during the meeting.



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America's Finest
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Industrial Truck Batteries



When you buy a Gould Research-Built Battery, you not only get the finest battery modern science can give you . . . you get also the finest, nation-wide field engineering service in the industry.

Strategically located in all principal cities, Gould Field Engineers are as near to you as your telephone . . . ready to help you get greatest possible service from your batteries and keep your facilities in operation. Through educational work with your maintenance staff, advice on selection and anticipation of battery needs and actual emergency servicing of batteries, your Gould Field Engineer is perfect operating insurance.

Call him in. You'll find it the best move you ever made. Don't forget to ask him for the new Gould Plus-Performance Plan material for your maintenance staff.

Always Use Gould-National Automobile and Truck Batteries

GOULD Batteries

GOULD-NATIONAL BATTERIES, INC.
TRENTON 7, N. J.

"BETTER BATTERIES THROUGH RESEARCH"

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For More Information Circle No. 280 on Inquiry Card—Page 17

association news

District Four Associations Hold New Type Council Meet

THE PUBLIC RELATIONS WORKSHOP: left to right, Jack Ruff, Ed Evans, Rollie Neal, Jack Baker, Committee Chairman Don Corre, Harry McMullen, Hal Gray (public relations expert of Michigan State University), Weldon Sharp, M. Brundridge, and Tom O'Reilly. Not shown is R. F. Holtman, P. R. Chairman of the Indianapolis Association—he took the picture.



WITH AN all day council patterned after a five ring circus, Fourth District Vice President Harold A. Berry announced the conclusion of a very successful Fourth District Council Meeting at Michigan State University, East Lansing Michigan, with 65 members present from ten associations in Indiana and Michigan.

Deviating from the usual practice of the district chairmen presenting their reports to the national directors during the council, the meeting started at 9:30 A.M. with a brief welcome by Dean Wynn-garden of Michigan State University, followed by the three district chairmen giving a short report on what they expected to accomplish in each of their phases for the coming year, such as education, public relations and standardization.

Following these reports, the meeting broke up into five separate groups. These were national directors, presided over by Harold A. Berry, 4th District vice president; educational, presided over by Dwight Brooks, district chairman; public relations, presided over by D. J. Corre, district chairman; standardization, presided over by Leonard Butters, district chairman; and local officers seminar, presided over by Nelson Gibbins, national chairman, Public Relations.

These meetings continued all day with a general assembly for lunch and to hear an address by Al Soell, president of NAPA. It was generally agreed upon by Mr. Berry and the District Chairmen that this type of fall council was much more beneficial to each group than the previous type councils that have been held. Each group leader was able to meet with and properly indoctrinate the local chairmen of his group and pave the way for a clearer understanding of the aims and objectives for the coming year.

The University assisted with the meetings by assigning professors to aid the group leaders in answering questions and giving the groups the slant on what the University is doing in these phases to assist the industrial world.

DISCUSSING EDUCATION PROBLEMS are, left to right: R. L. Wolf, A. H. Lichtenberger, F. S. Gardner, H. W. Hauger, E. G. Carlson, Len Ansley, R. H. Croucher, Committee Chairman Dwight Brooks, Cliff Gallaher, Earl Nelson, J. Stanley Bien, R. W. Richards, H. Stewart, P. P. Hoan, W. J. Pierce, and J. H. Hoagland.



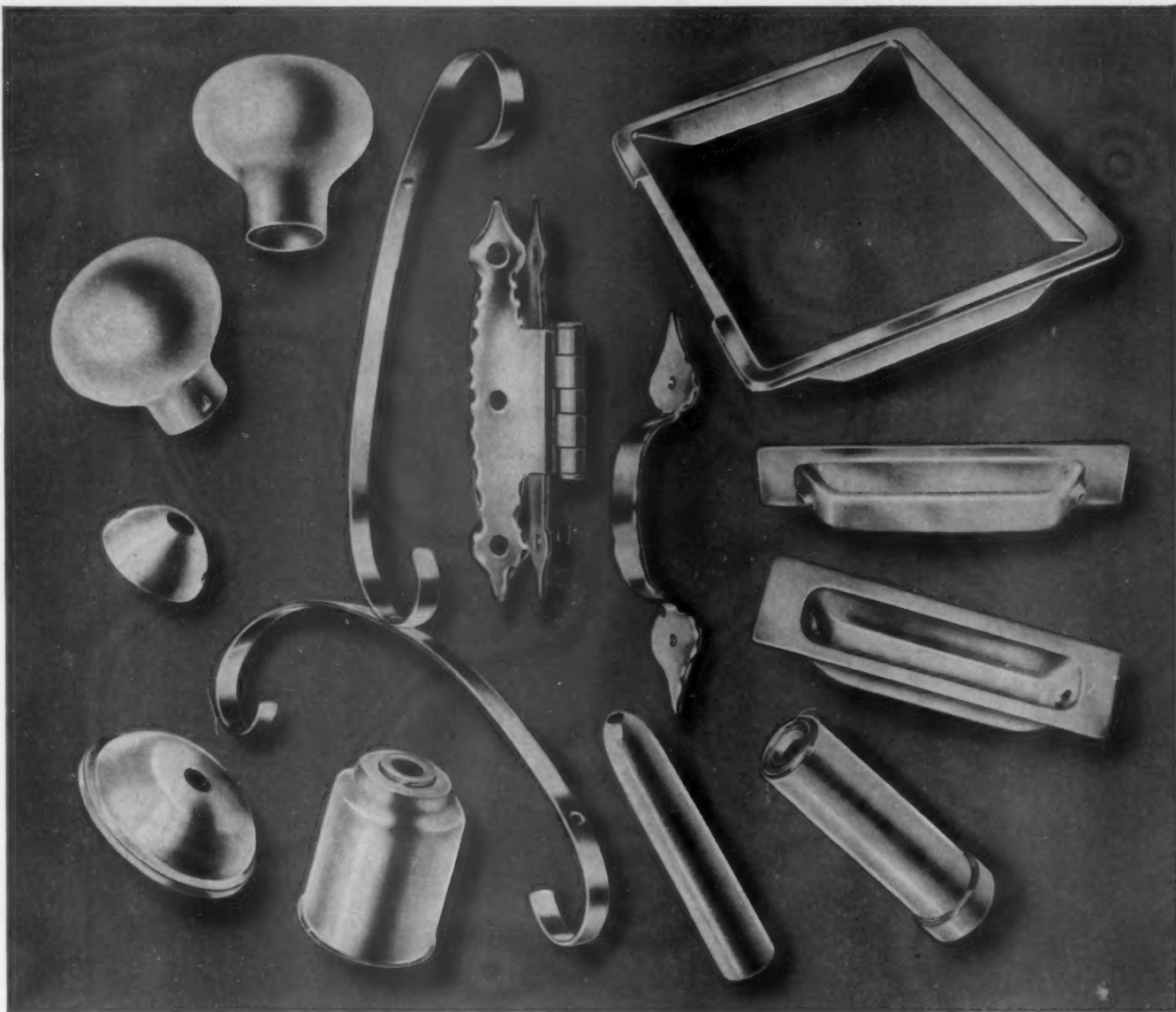
DISTRICT COUNCIL IN SESSION—Shown here (left to right) are: John Brennan, Robert Bangert, John Berry, Carl Voss, Jack Emerick, Les Auberlin, District Vice President Harold Berry, Charles Marks, Tom Paquin, Fred Alcorn, Marvin Klang, Buss Wilbur, L. Russell, and F. W. Mitchell.



DISTRICT FOUR STANDARDIZATION COMMITTEE—Members in attendance include (left to right, beginning upper left): Sam Folz, Col Nygren, C. E. Hoyle, John Burnell, Committee Chairman Leonard Butters, Robert E. Sample, J. N. Grieson, H. N. Hancock, and C. R. Lenglade.



A SHORT CUT TO A FINISHED PRODUCT



CUT POLISHING COSTS IN HALF WITH *Formbrite* the new superfine-grain drawing brass with the built-in finish

The secret is in the grain: Special methods of rolling and annealing produce in Formbrite® a grain structure so fine that often a simple color buff will bring it to a bright, lustrous finish.

Formbrite is also harder, stiffer, springier and more scratch resistant—yet it is surprisingly ductile, readily stamped, formed, drawn, and embossed. And Formbrite plates beautifully.

More and more companies are using Formbrite to cut their polishing costs and get superior products—at no extra cost over ordinary drawing brass. They often save more than the cost of the metal itself.

Globe Lighting Products: Reports savings in polishing cost of from 26% to 55% in various components of their

high-quality, solid brass lighting fixtures. Work pile-ups were eliminated in the polishing room, too.

Farrington Mfg. Co.: Rejects after polishing dropped from 11% to under 1% after switch to Formbrite in frames for "jewel-box" case for an electric shaver. A better finish in one faster pass through the automatic polishing machine.

Jarco Metal Products, Inc.: Polishing costs cut 40% in deep-drawn pen, pencil, and lipstick cases. Uniformity of Formbrite eliminated shutdowns for adjustments in long-run production.

Spill-Stop Mfg. Co.: Saved enough in polishing cost to avoid price increases—despite increased labor and material costs. Reports Formbrite fabricates almost as readily as the softest drawing

brass... uniformity of gage in Formbrite has simplified manufacture.

Find out for yourself how Formbrite can serve you as a short cut—save you money. See your American Brass Company representative. Write for Publication B-39. Address: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

*Reg. U. S. Pat. Off.

Formbrite

FINE-GRAIN DRAWING BRASS

an **ANACONDA**® product

made by
The American Brass Company

Upstate N. Y. Conference is Highly Successful



National President Soell was enthusiastically greeted by members attending the two-day conference.



About 225 members of the sponsoring associations attended the conference.



Awaiting Mr. Soell's address at the President's Luncheon were, left to right: Eugene L. Hunt, Albany Castings Co.; James Conklin, Toledo Scale Co.; Stuart Heinritz, editor of *PURCHASING*; James F. Painter, executive secretary of A. S. T. M.; R. A. Copeland, Archer Manufacturing Co.; and E. H. Stiffler, Will Corp.

Theme of the Upstate New York Conference of Purchasing Agents was **Profits Through Purchasing**. The meeting was held October 28-29 at the Sheraton Hotel in Rochester. It was sponsored by the six associations in upstate New York—Buffalo, Eastern New York, Elmira, Rochester, and Syracuse and Central New York. The program adhered closely to the general conference theme. Outstanding speakers presented varied and interesting profit-making ideas for purchasing executives.

First major speaker at the two-day meeting was Stuart F. Heinritz, editor of *PURCHASING*. His talk, "Profits From Purchasing," was designed to start PAs thinking about ways in which they could make **Profits Through Purchasing**.

The second speaker discussed specific techniques for making bigger **profits**. He was Robert J. Painter, executive secretary of A.S.T.M. His topic was "Standardization, Simplification, and Specification."

Mr. Painter outlined a number of case histories showing the savings made through the use of standardization and pointed out that the use of case histories is an excellent way to interest management in a "standardization program".

In conclusion Mr. Painter said, "Millions of dollars are being spent by American industry and government in standardization work, and this definitely will continue. There is ample evidence that standards organizations, company standards departments, purchasing agents, and engineers working together have just scratched the surface. With each new development, for example the use of nuclear energy, standards are presented; and as they are resolved so will many of our industrial problems be resolved and our economy go forward."

Mr. A. W. Soell, President of the National Association of Purchasing Agents spoke at the Presidents' Luncheon. He emphasized the importance of developing higher standards of purchasing performance to meet the demands of competition in an expanding economy. "All of us," he said, "benefit from the fruits of this competitive system."

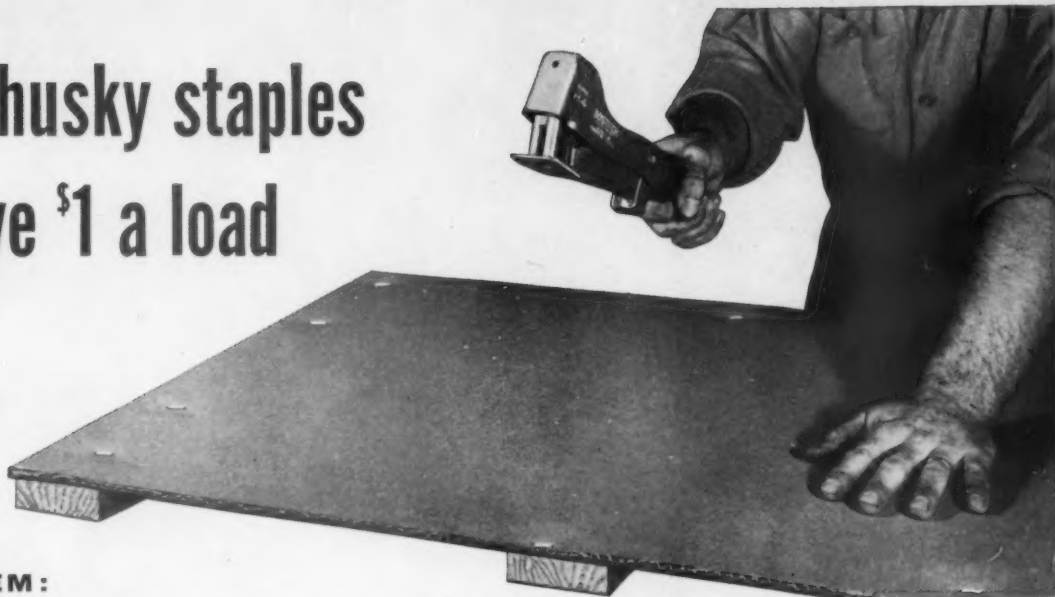
At the Saturday morning session Mr. Clyde Womer of Sterling Winthrop Research Institute gave a very enlightening talk entitled "Nuclear Energy For Industry."

During this same session, Mr. George A. Renard, executive secretary of N.A.P.A., talked "From One P.A. To Another." Mr. Renard warned that our economy may be at the top of a boom and that is the time to be cautious. He pointed out that troubles always come from excesses and called attention to today's high inventories and record credit.

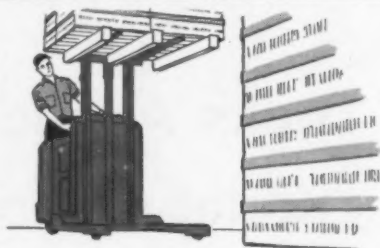
Mr. Renard commented that our productivity and living standards can never be reached by Com-

(Please turn to page 216)

How 16 husky staples help save \$1 a load



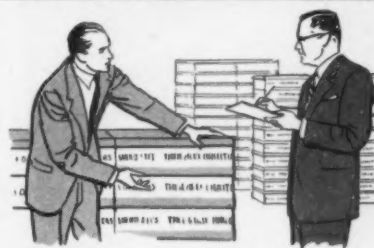
THE PROBLEM:



In a leading paper mill, heavy printing stock was moved on mill pallets by lift truck. Such wooden platforms were so costly for customers that often cartons had to be hand-loaded.



Too, not all customers used lift equipment. Many objected to paying extra for "useless pallets." Orders from these customers meant special handling, added expense.

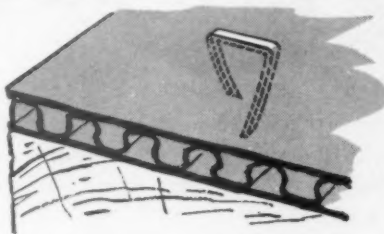


The problem: find a way to keep handling costs down on all orders. Could stapling be the answer? Bostitch had helped cut costs on other jobs in the mill—why not this one, too?

THE SOLUTION:



A Bostitch Economy Man and the mill's engineers worked out the answer—a "give-away" pallet: corrugated board quickly stapled to scrap lumber with a Bostitch H4 Hammer.



Four small wood strips raise the load just enough for lift truck chisel forks to slip under. Sixteen $\frac{3}{4}$ " heavy-duty Bostitch staples secure strips. Boxed load supports itself between forks.



Entire pallet costs less than 40c. Customers get pallets free, save handling when unloading. The mill saves pallet storage space and hundreds of dollars in handling, billing and salvage costs.

How much can you save by switching to Bostitch? Your Bostitch Economy Man will work out answers for you without cost. He's one of 375 trained fastening specialists working out of 123 cities in the U. S. and Canada. Over 800 kinds of Bostitch staplers for business and industry. Look for "Bostitch" in your telephone directory. Or mail coupon.

Fasten it better and faster with

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STAPLERS AND STAPLES

BOSTITCH, 732 Mechanic Street, Westerly, R. I.

You say you can save my company money on fastening costs. Okay, prove it!

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Company _____

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New England Association Looks Ahead At Golden Anniversary Celebration



Specially honored Harry Graham, secretary of the New England Association, is shown at left with Mrs. Graham, before the big surprise presentation. Others, from left, are Dan Donovan, Mrs. Donovan, and George Renard.



Mr. and Mrs. George Seguin, and Mr. and Mrs. Al Soell at the speakers' table. President Soell congratulated the association on its past accomplishments and he expected even greater progress from now on.

"FIFTY years old but more forward-looking than ever" was the theme of the golden anniversary meeting of the New England Purchasing Agents Association on October 10. The oldest purchasing group in the country celebrated its 50th year of incorporation at a gala celebration in the Statler Hotel.

Highlight of the party was an award to Secretary Harry J. Graham, who has served the association for the past 34 years. Harry's accomplishments as secretary, editor of the *New England Purchaser*, and friend and confidant to thousands of purchasing agents, were lauded by all guest speakers. On behalf of the association, Daniel G. Donovan, past president of the local, and past vice-president of the National Association of Purchasing Agents, presented Harry with a diamond-studded gold medal, and a bound book of congratulatory letters.

Among the guest speakers were A. W. Soell, president of N.A.P.A.; H. Stafford Kellam, N.A.P.A. vice president for District 9; George A. Renard, executive secretary-treasurer of N.A.P.A.; Stuart F. Heinritz, editor of *PURCHASING*; and Ben R. Newbery, past president of N.A.P.A. and 1955 winner of the J. Shipman Gold Medal Award. George D. Seguin, president of the local, presided. Wilber G. Hayward, past president, acted as toastmaster.

(Please turn to page 216)

Replace discs easily

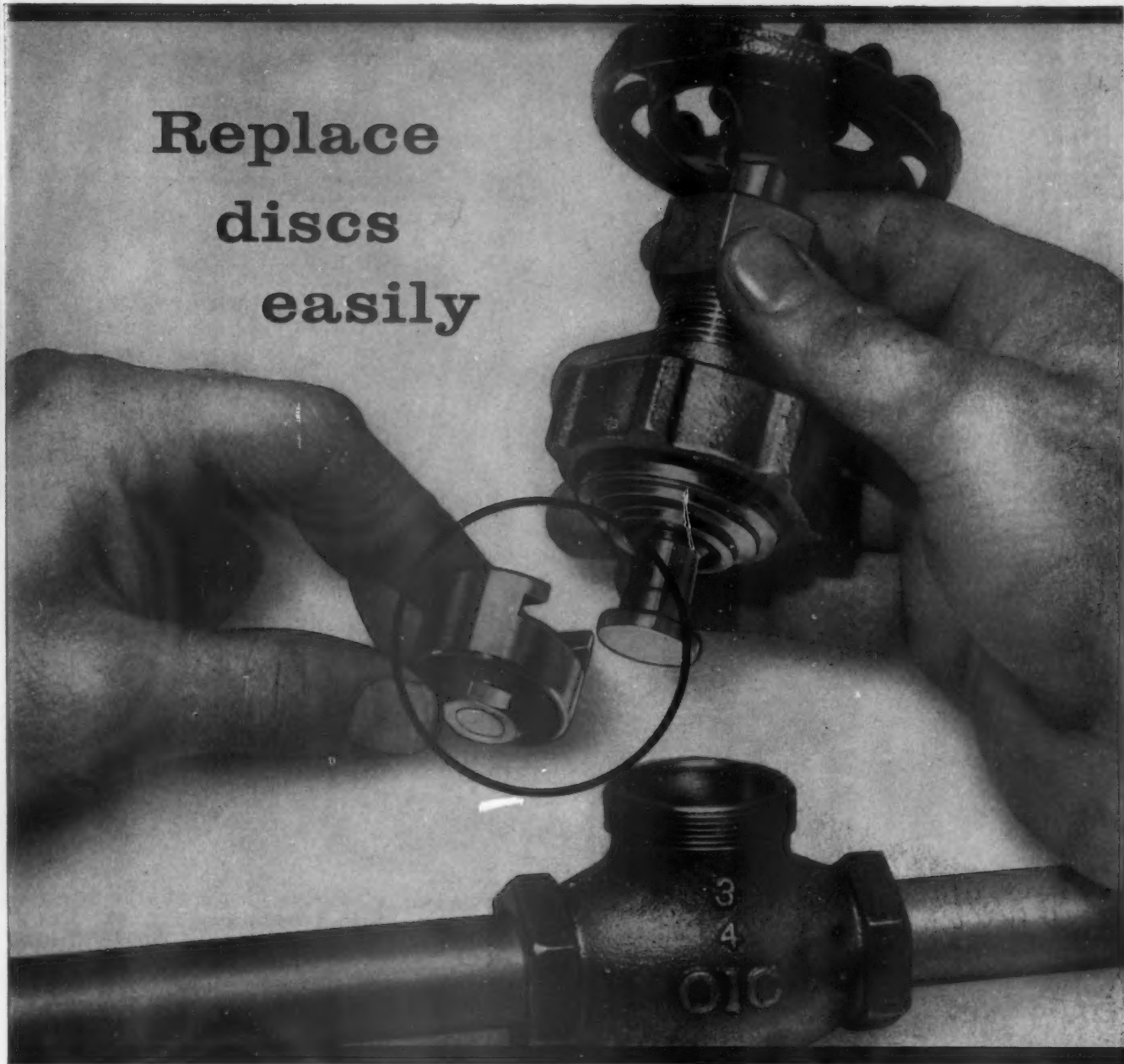


Fig. No. 520, 200 lbs. WSP, @400°F. 400 lbs. cold WOG, non-shock

It takes two minutes or less! Simply break the union joint and slip a replacement disc holder onto the button-head of the stem. Or, replace the disc only.

Additional features of this OIC line greatly reduce the need for other maintenance. For example: (1) The modern union body-bonnet joint assures a safe, tight, leakproof seal which is not affected by frequent dismantlings. (2) The special OIC alloy-40 stem material eliminates galling and seizing.

(3) Molded, graphite-asbestos, plastic packing is used which seals without hardening or cracking in service.

Reduce your valve problems by installing this OIC line wherever you need bronze globe and angle valves with composition discs. Call your OIC Distributor for more facts, or write for Form No. 1001 which describes the entire OIC 500 line with composition discs, as well as spherical and plug-type discs in globes, angles and checks.

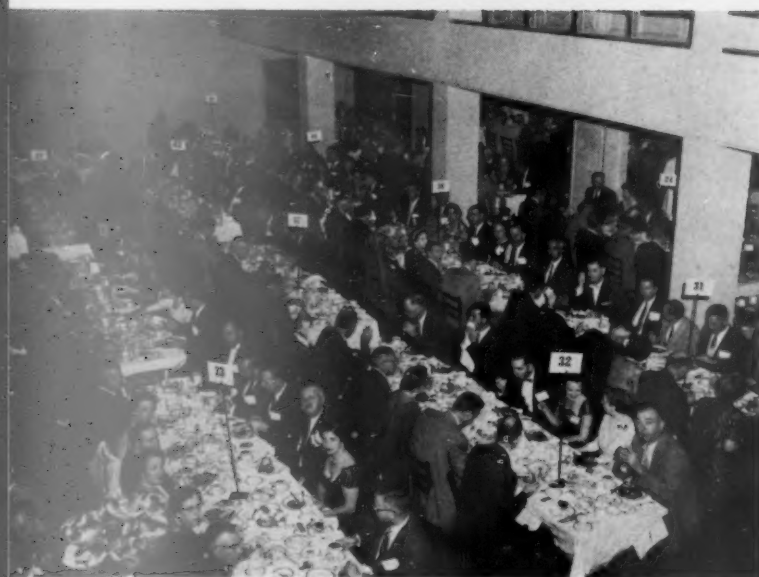


THE OHIO INJECTOR COMPANY • WADSWORTH, OHIO

FORGED & CAST STEEL, BRONZE & IRON,
LUBRICATED PLUG VALVES

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association news



Attendance at the banquet topped 700—a new record.

The ladies weren't idle. One of the highlights of their program was a fashion show and luncheon.



Attendance Record Set at Seventh District Conference

THEME of the Twelfth Annual District Seven N.A.P.A. Conference was *Down to Earth Purchasing-Down South*. The conference began with an Early Bird Dinner on Sunday, October 16 and continued through Tuesday the 17th. Throughout the entire meeting the basic conference theme was emphasized. From beginning to end it was evident and often expressed that Southern purchasing had come of age. This was borne out by the fact that 537 registrants filled Birmingham's Dinkler-Tutwiler Hotel for the meetings.

N. A. P. A. President A. W. Soell and Executive Secretary-Treasurer George Renard added a great deal to the conference through their presence and their timely and constructive addresses. Mrs. Soell was a welcome and gracious guest.

Wilbur J. Pierce delivered a fine talk on the purpose, development and accuracy of the N. A. P. A. Business Survey. He substituted ably for Chet Ogden. The fourth program participant from outside the district, Stuart F. Heinritz, editor of *PURCHASING*, was unable to attend. He was marooned at Westport, Conn. by the floods which ravaged parts of the Northeast. At the time he was scheduled to speak, he was assisting fellow citizens in the emergency.

The conference theme was carried out with three successive sessions entitled *Profit from Purchasing*, *The Purchasing Workshop*, and *Purchasing Performance*. The fourth session of the conference was devoted to District Seven affairs.

(Please turn to page 208)

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Cold Finished—Hot Rolled—Alloy—Stainless—Aluminum—we stock them all! Just call us next time you need bars—any kind, any quantity. From our huge stocks we can give you speedy delivery of exactly the type, grade, size, condition and finish you want. And we are staffed to give you any technical assistance you may require.

Cold Finished Bars. Largest variety of sizes, grades, finishes in rounds, hexagons, squares, flats. Including USS "MX" high-speed, low cost screw stock.

Hot Rolled Bars. Regular Merchant Bar Quality and Special Bar Quality. Rounds, hexagons, squares, flats, half rounds, ovals, half ovals, Bar Shapes.

Alloy Bars. Hot rolled, cold finished,

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(Continued from page 206)

This session was presided over by former N.A.P.A. President T. A. Corcoran. Welcoming remarks were expressed by Hon. James W. Morgan, mayor of Birmingham, and Arthur M. Trogner, Jr., president of the Alabama Association. In addition to President Soell and Mr. Pierce, other speakers were Harlan E. Cross, Alabama, and M. B. Eubanks, of the



A large and attentive audience attended each session of the conference.

Chattanooga Association. They both did an excellent job of pointing up the profit potential of purchasing. J. K. Chambers, Little Rock Association, presided at this session. Purchasing information and pointers were developed by means of a skit. The script, other than addresses, was written by George H. Cole. The principal character was well portrayed by Clyde H. Porter, assisted by two lovely young ladies from Birmingham Southern College,

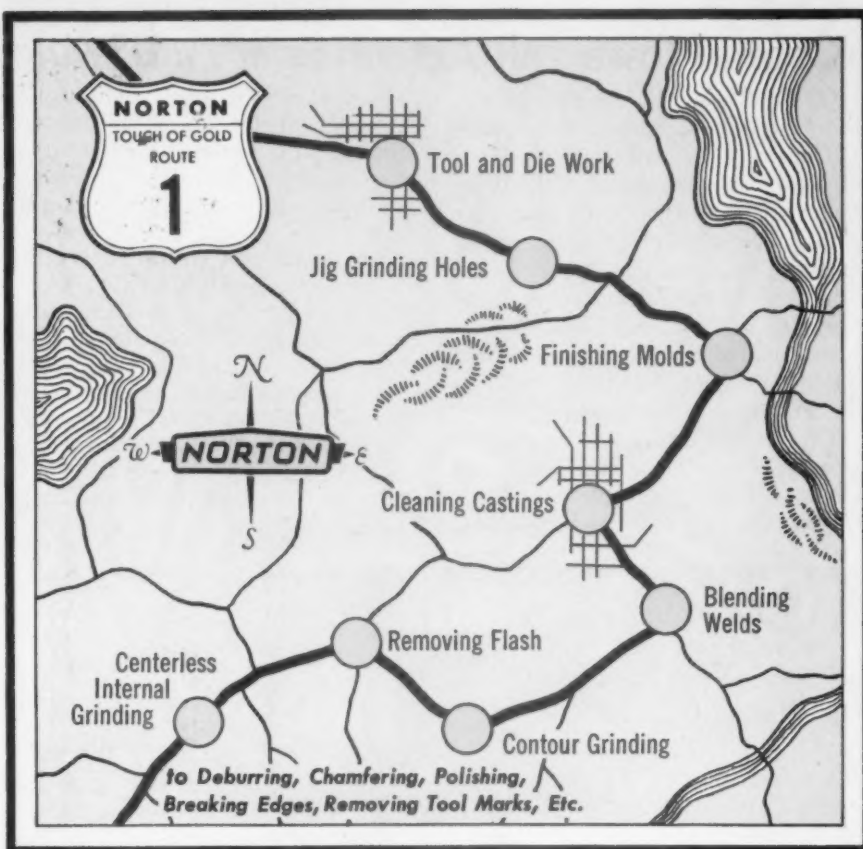


From the first session (pictured here) to the last, top speakers presented new ideas on "Down to Earth Purchasing—Down South."

Misses Susan O'Steen and Betty Hoffman. Also participating and delivering addresses during the session were George A. Renard, Warren Whitney, Birmingham business executive, and Hoyt Pritchett and Thor Laugesen of the Louisville Association. The play was directed by Dr. Arnold F. Powell, Professor of English and Dramatics, Birmingham Southern College. All the participants and speakers gave convincing performances and the session was very effective.

This down-to-earth purchasing session was presided over by Connie Sisk of the East Tennessee Association. Principal speakers were: Charles E. Colvin, New Orleans Association; Jack S. Reaves, Florida; and J. R. Carmichael, Georgia. Leading the discussions following each address were: M. C. Farrell, Mississippi; Martin H. Sunderland, Mem-

(Please turn to page 210)



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NORTON MOUNTED WHEELS AND POINTS

chart your "TOUCH of GOLD" Route to hard-to-reach grinding spots

You by-pass trouble, save time and costs, when you use Norton mounted wheels and points to reach those hard-to-get-at grinding areas. That's because Norton builds into every one of them the same "Touch of Gold" performance that you get with all Norton wheels.

They're trued on their own spindles. This not only gives them perfect concentricity plus accuracy of dimensions and shape. It also assures sharpness and fast-cutting action from the start — no breaking-in needed.

They stay TIGHT on their spindles under toughest use — thanks to Norton-developed mounting techniques.

They're identically duplicated. Norton's

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The line of Norton mounted wheels and points is 100% complete, covering all applications. Available in all required abrasive and bond types, including diamond abrasives and laminated BF construction. Special spindles and cement available for ultra-high speed precision grinding.

See your Norton Distributor or write to NORTON COMPANY, Worcester 6, Mass. Distributors in all industrial areas, listed under "Grinding Wheels" in your phone directory, yellow pages. Export: Norton Behr-Manning Overseas Incorporated, Worcester 6, Massachusetts.

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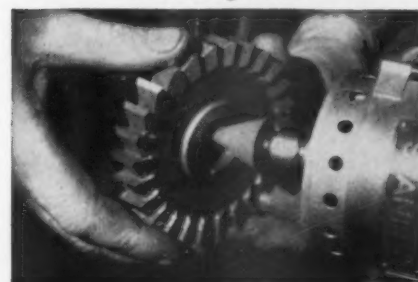
Finishing a die



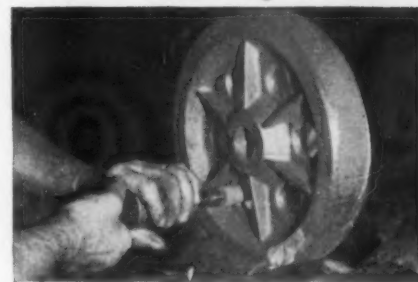
Centerless internal grinding



Smoothing a mold



Chamfering



Cleaning a casting



Deburring a slot



Ask these questions, too, when you judge a fluorescent lamp ...



Are its electrodes built for longest lamp life?

Constant development of new and better ways to make fluorescent lamp electrodes has enabled Westinghouse to *triple* the life of its fluorescent lamps since 1948.



Is it easy to seat securely?

Westinghouse fluorescent lamps are built with "guide bumps" on the end-caps. Easily felt with the fingers during lamp installation, they tell at a touch when the lamp has been securely seated in its sockets.



Is it the correct type, size and color for the lighting job to be done?

In the Westinghouse fluorescent family of 290 different lamps—including Slimline and Rapid Start—there's a type and size precisely right for every office, plant and merchandising application. Colors include seven different shades of "white" alone.



For the full story on how to get more for your money in fluorescent light, contact your Westinghouse Lamp Representative or write Westinghouse Lamp Division, Dept., PG Bloomfield, N. J.

YOU CAN BE SURE...IF IT'S

Westinghouse

Central Iowa Fall Activities in Full Swing

On September 13, the members of the Purchasing Agents Association of Central Iowa held the first dinner of the 1955-56 season at which Tom Collins of Kansas City was the principal speaker. Earlier in the afternoon, the members had been invited by the Firestone Tire & Rubber Co. to visit their Des Moines plant, one of the most modern and up-to-date manufacturing units in the Firestone organization.

On October 11th, a dinner meeting was held at the Ames Golf and Country Club, Ames, Iowa. Prior to the dinner, a Public Relations

Forum was scheduled. The panel consisted of Dr. Ralph S. Novak, professor, Industrial Administration, Iowa State College; R. G. Ulrich, Thermoid Rubber Co., Grinnell; Jack Veller, Inland Steel Co., Davenport, Iowa; and Merlin H. Anderson, v. p., General Filters Co., Ames. Each panelist was given 10 minutes to develop his theme, after which there was a spirited question period.

The guest speaker at the dinner that followed was J. N. Christianson, Public Relations Officer of Quality Parks Envelope Co., St. Paul, Minn. His speech was entitled "Five Dollars Down."



Watching tires being built at the Firestone plant are, left to right; C. W. Clauser, Bob Daasch, Bob Balvin, Bob Brown, and Mel McCann.



Following their tour of the Firestone plant, members of the Central Iowa Association heard a talk by Mr. Tom Collins at a regular meeting.

(Continued from page 210) phis; and Thomas A. Cubine, Chattanooga. It was an outstanding session in every respect. It immeasurably increased respect for purchasing and purchasing agents—*Down South*.

This fourth session was an innovation at District Seven conference and a very worthwhile one. Speakers were: Walter G. Joyce, former District V. P. and Gus W. Leep, the current vice president; Ollie Williamson, retiring chairman and George Bosworth, new chairman of the Seventh District activities committee. Presiding was R. J. Dilger of the Louisville Association. Bob will be general chairman of the 1956 Conference which will be held in Louisville, Kentucky on October 7-9, 1956. The Annual Banquet and Social

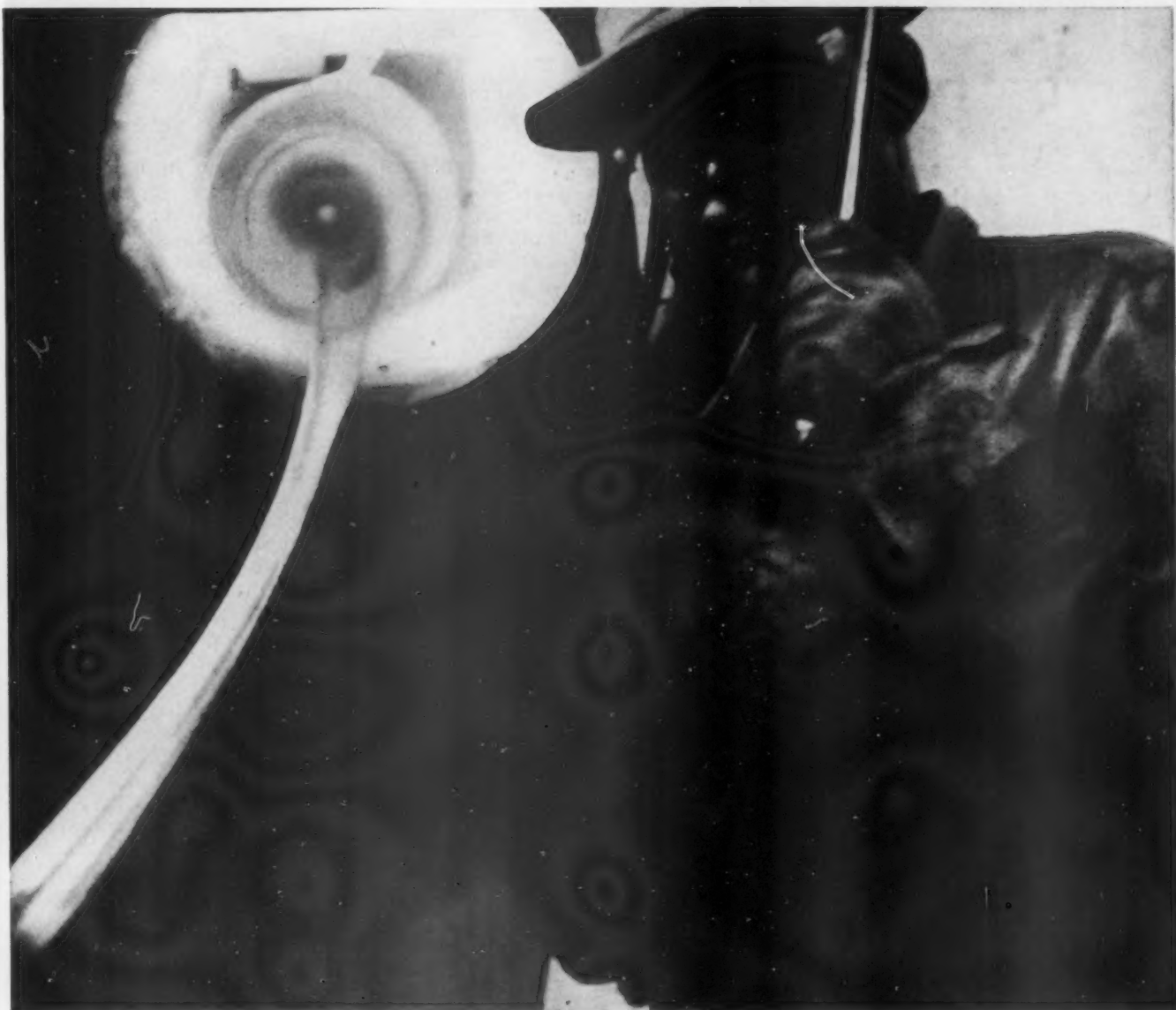
Hour on Monday evening was attended by some 700 purchasing agents and their guests. The Early Birds Dinner on Sunday played to more than 400. Registrants to the conference gave every impression of enjoying these and the other social activities.

Visiting Ladies

One hundred and seventy ladies registered for the conference. B. Wiberg and her Committee were on the job early and late to see that the ladies received a cordial welcome. In addition to the Social Hour and Banquet on Monday evening, and the Early Birds Dinner on Sunday, there was a reception given all the registrants by the Alabama Association.

how to judge a fluorescent lamp ... point no.

3



ask about **TAILORED
GLASS**

Quality of glass in a fluorescent lamp directly affects lamp performance. For example: if the "surface condition" of the glass is not exactly right, the lamp's light-producing phosphor coating will not stick securely to the inside of the tube, and bare spots will develop. To make *sure* of proper surface condition—as well as high strength, good clarity, precise dimensions and other essential properties—Westinghouse makes all of its own fluorescent lamp glass, tailoring it from silica to finished tubing specifically for fluorescent service.

YOU CAN BE SURE...IF IT'S **Westinghouse**

DECEMBER, 1955

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Pittsburgh Host to Sixth District Conference

"COME and Mix With District Six" was the theme of Sixth District Purchasing Conference held recently at Hotel Webster Hall in Pittsburgh. And hundreds of PAs did just that. They came from Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Erie, Lima, New Castle, North Central Ohio, Northwestern New York, Springfield, Toledo, and Youngstown, and from the Tri-State Ass'n.

They found the program and fellowship to more than justify the effort. The program was outstanding; the arrangements well handled.

The program started promptly at 9:30 A.M. on Friday, October 14. Following the invocation and the delivering of the "keys to the city" by Pittsburgh Mayor David L. Lawrence, Paul H. Martin told "The Pittsburgh Story and Civic Leadership." Mr. Martin, the executive director of the Allegheny Conference on Community Redevelopment, described the tremendous progress in

converting Pittsburgh from the smokey city of yesteryear to one of the most beautiful in America. According to Martin, "the big story in Pittsburgh is that business and government have combined to rebuild their city."

"Purchasing in the Modern Economy" was the topic selected by N.A.P.A. President A. W. Soell. Mr. Soell warned PAs that though they have made substantial progress in the past, they can't slacken off if they are to continue to serve an ever-growing economy effectively. He called attention to the fact that the National Association was cognizant of the growing need for service and, for that reason, had added last year's National President, Howard Ahl, to its permanent staff.

The discussion then narrowed down from general purchasing practices to a specific purchasing problem with the next speaker, H. Thomas Hallowell Jr., president,

Standard Pressed Steel Co. Mr. Hallowell's topic was "Specials Can Be Licked." He urged PAs to do their best to eliminate specials when standard off-the-shelf products can be adapted to do the same job at lower cost—and with considerably greater availability. "You can no longer afford the luxury of pulling at will a special part out of the hat when you can so often do the same job better by taking a standard stock item out of a good manufacturer's standard book," Mr. Hallowell declared.

Following luncheon, an extremely important and often neglected subject was taken up—"The Legal Aspects of Purchasing." On the panel were three men who knew both the law and purchasing. They were: Joseph G. Smith, director of purchases, Pittsburgh Steel Co.; Lyle E. Treadway, purchasing agent, Federal Glass Co.; and J. W. Lindsey, director of purchases, Jones and Laughlin Steel Corp. The panel emphasized that the PA should not try to solve his own legal problems; a qualified attorney is much better qualified. However, the PA should be able to recognize possible legal problems so he can take them up with the company attorney for advice.

The afternoon session concluded with a talk on "United States Strategic Material Supplies" by Dr. John D. Morgan Jr., Materials Area, Executive Office of the President, Office of Defense Mobilization. Dr. Morgan said "there is little possibility that the United States will be seriously handicapped by depletion of deposits of metals and minerals."

At the banquet, PAs had a real treat in the person of Perry Epler Gresham, D.D., president, Bethany College. Dr. Gresham was simultaneously amusing and making moral points in his talk, "Ali Baba and His Legions."

The Saturday morning got to a whopping good start with a presentation called "Looking Behind

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PURCHASING



Three delegates got a little fresh air before the morning session commenced.

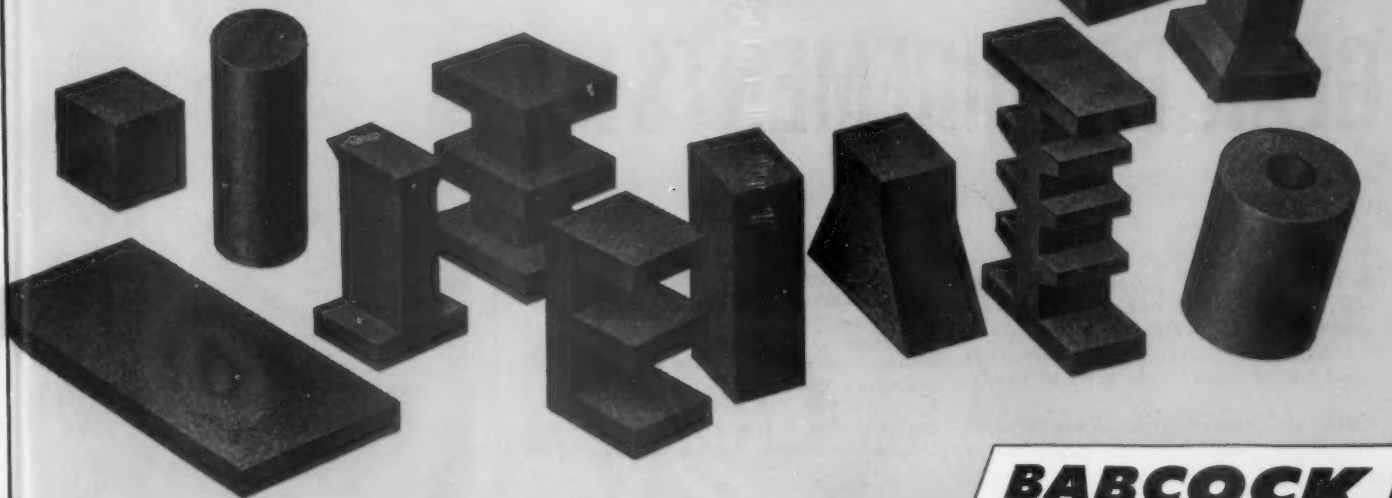


A large, attentive audience was typical of every conference session.

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Made at B&W's Augusta Works, B&W Silicon Carbide kiln furniture is available in several types for various operating requirements. Your local B&W Refractories Engineer has complete details.



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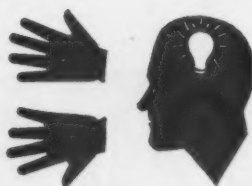


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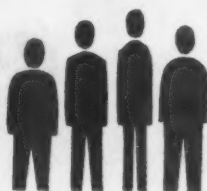
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NOTE: The PERKINS PRECISION SPRING COILER is the latest development in the spring

coiler field and eliminates entirely the use of arbors and long set-up time. It is a complete self-sufficient machine and enables you to make the spring you want when you want it—in seconds. The coiler produces any type of spring, in any diameter and any pitch with this range: Wire sizes .005 to .125. Diameter, from 3/32" to 12" and larger. Size of the compact coiler is only 7 1/2 x 16". A POWER MODEL is available. Information on request.

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Sixth District Conference

(Continued from page 212)

the Price Curtain." Using slides, George O. Pratt, senior chemical and raw materials buyer, Aluminum Company of America, described the underlying economic factors that determine prices and markets.



General chairman of the conference was C. Warner McVicar shown here with Mrs. McVicar.

At this point in the program, the scheduled speaker was to have been George Renard, executive secretary-treasurer of N.A.P.A. However, Mr. Renard agreed to fill the vacancy created in the previous day's program by the untimely death of Charles E. Love, executive vice president, Commercial Controls Corp.

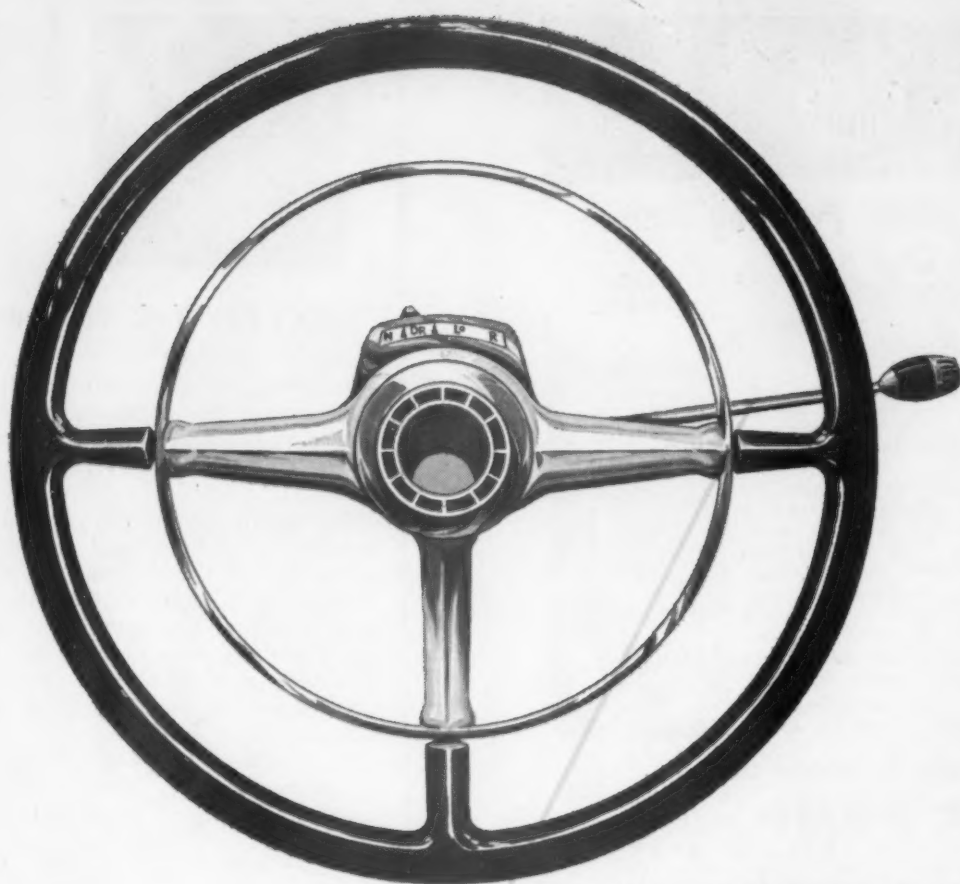
Whether they be on Friday or on Saturday, Mr. Renard's remarks on the current economic situation and Association affairs always effectively make "home plate" with his audience—and this time was not an exception.

The Conference concluded—appropriately enough—on some looks into the future by authorities in two different fields. Serge Klotz, partner, McKay-Shields Associates gave his views on "The Business Outlook—Domestic and International." Dr. Richard J. Lund of Battelle Memorial Institute described "How Technical and Market Research Will Affect the Purchasing Agent of the Future."

All in all, it was one of the best Conferences yet!



George Renard gave a round-up of the current economic situation



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shift in
gears saved
\$256,000**

**Five million MUELLER BRASS CO. forged ring
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The performance of these forged ring gears is also far superior to the sand cast gear, which had a tendency to flake away and crack around the teeth, causing failures. More than five million forged ring gears have now been used in these transmissions without a single failure. Being porous, the sand casting was difficult to balance, but the forging has a dense, homogeneous structure that helps keep it in perfect balance.

Strong, long-wearing non-ferrous metal parts, forged to your specifications by Mueller Brass Co., can help reduce your costs and improve the performance of your products just as they have done in this transmission application. For complete information, write us today.

Write today for your complete set of Mueller Brass Co. engineering manuals.



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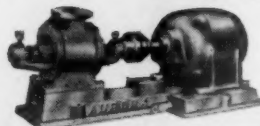
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Better on "1001" Pumping Duties

Capacities
to 150 G.P.M.



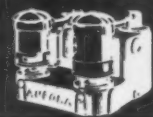
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to 500 Ft.



**APCO Two-Stage Turbine
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For More Information Circle No. 291 on Inquiry Card—Page 17

**The man who didn't
Come to Dinner.**

The Guest of honor,
no less.
He forgot
to write it down.

Moral: Use your Keith Clark Desk Calendar to arrive
at important business and social engagements
—calmly, efficiently, and socially relaxed.

BE WELL-APPOINTED ... ALWAYS

Ask your stationer for prices



**WORK-A-DAY
SCHEDULE-A-DATE**



The Calendars that work for you.
130 West 42nd St.,
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For More Information Circle No. 292
on Inquiry Card—Page 17

HOT DIP GALVANIZING

**... EXCELLENT FACILITIES
for PICKLING & OILING**

Our Record: Over 50 years of
progressive galvanizing service
to manufacturers and fabrica-
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... any size or shape, any size
order from the smallest to the
largest. Excellent facilities for
pickling and oiling.

**"TO ECONOMIZE,
GALVANIZE AT
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**ENTERPRISE
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PHILADELPHIA 25, PENNSYLVANIA

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on Inquiry Card—Page 17

association news

Upstate New York Conference

(Continued from page 202)

munism and in his opinion the Rus-
sians are beginning to realize this.
They are therefore taking the at-
titude of, "If you can't beat them,
join them."

During the conference, panel dis-
cussions were held on transporta-
tion and traffic, and value analysis.
Mr. Lewis A. Shur of the Strom-
berg Carlson Co. conducted the
panel on transportation and Mr. A.
G. Ruediger of the Carrier Corpora-
tion acted as moderator for the
panel on value analysis.

At the banquet Friday evening
Mr. James Cooney of the Interna-
tional Salt Company acted as toast-
master and the principal speaker
was Dr. Arthur Secord of Brook-
lyn College who spoke on "How To
Tell Your Men What You Know."

Two hundred and twenty-five
members of the sponsoring associa-
tions attended the conference.

New England Association

(Continued from page 204)

and Robert E. Shillady, past presi-
dent, presented the memorial for
departed members. Rev. John Ar-
thur Samuelson, First Parish
Church, Brunswick, Maine, offered
the invocation.

(Please turn to page 218)



One of purchasing's most prominent per-
sonalities, Ben Newbery, with Mrs. New-
bery at the 50th birthday celebration of
the New England Association.

**You may be asked
these questions about
BUSINESS COMMUNICATION**

Q. *How can we keep our people where they belong—keep them from wandering away from their jobs?*

A. WITH A P-A-X "INSIDE" TELEPHONE SYSTEM. Install a P-A-X telephone at the desk of every employee who needs to keep in touch with other departments. This will put an end to employees walking from department to department to obtain information or issue instructions. You'll drastically reduce wasted time—and you'll step up production.

Q. *How can we be sure that customers' calls will never be blocked by "inside" calls?*

A. WITH A P-A-X "INSIDE" TELEPHONE SYSTEM. The P-A-X handles all "inside" calls automatically—entirely apart from your city switchboard. That leaves your city telephones free to quickly receive "outside" calls from your suppliers and your customers. You'll be able to give better service on these "income" calls.

Learn how P-A-X will cut telephone costs, yet *improve service* in your organization; how it will save time for executives, reduce overhead, and speed production. A P-A-X Business Telephone System for your company could be one of the best ideas ever proposed!

Write for the P-A-X FACT FILE: Automatic Electric Sales Corporation, 1033 West Van Buren Street, Chicago 7, Illinois. *In Canada:* Automatic Electric Sales (Canada) Ltd., Toronto. *Offices in principal cities.*



AUTOMATIC  ELECTRIC
ORIGINATORS OF THE AUTOMATIC DIAL TELEPHONE

For some good tips on cutting production costs...

... take a trip through the pages of this information-packed booklet, "Some Good Things to Know About Metal Cleaning." You'll find job-tested data on many cleaning operations that could well pave the way to lower production costs.

As you flip through the pages, you'll learn how pre-paint treatment with Oakite CrysCoat cuts costs 10 ways... discover modern methods for treating water in paint spray booths... read of the advantages of Oakite's rust-prevention methods... and more.

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you'll want a copy of this well illustrated booklet for your files. It's yours for the asking. Write: Oakite Products, Inc., 54 Rec-tor Street, New York 6, N. Y.

Technical Service Representatives in Principal Cities of U. S. and Canada

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS • METHODS • SERVICE

For More Information Circle No. 295 on Inquiry Card—Page 17

association news

(Continued from page 216)

Mr. Hayward read a special telegram from Governor Christian A. Herter, who was unable to attend,



A table full of well-known New England purchasers, reading counter clock-wise: Mrs. William B. Cummings, George J. Cronin, Mrs. Cronin, Mrs. Everett E. Brainard, Mr. Brainard, Robert C. Kelley (of Texas), Mrs. Kendrick Burns, Mr. Burns, Vincent deP. Goubeau, William B. Cummings.

complimenting the association on its continued growth and its contributions to the economic life of Massachusetts and the nation.

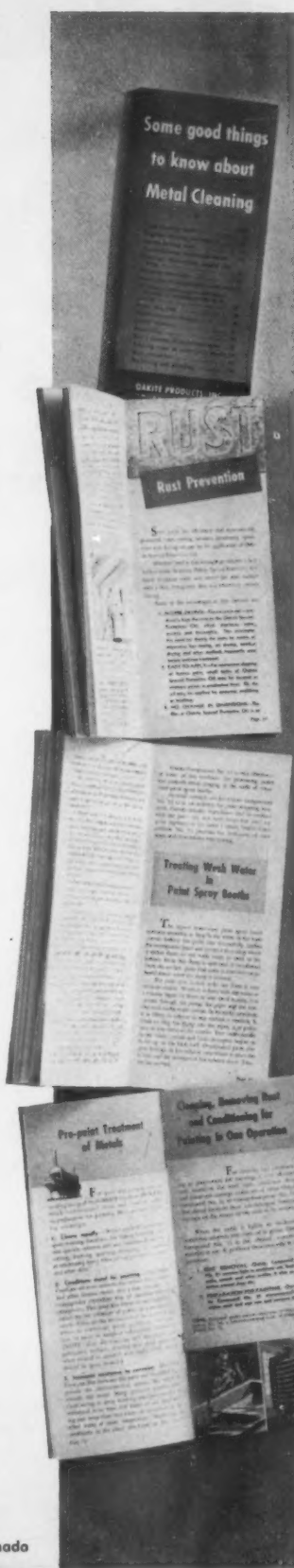
Dancing followed the banquet.

Georgia PAs Visit Plant

The October meeting of the Purchasing Agents Association of Georgia was devoted to a visit to the factory of the Southern States Equipment Corp. of Hampton, Ga. The program began with the introduction of Mr. Olan Richardson, president of the company, by the company's PA, Graham Mitchell. Mr. Richardson gave the group a short history of the company and, after a delicious meal, members of Mr. Richardson's organization took PAs in small groups on a very interesting tour of the plant.

The November meeting of the Association, which was held on the 29th, featured a visit by N.A.P.A. President Al Soell and District Vice President Gus Leep. It was a bang-up meeting.

The Georgia Association proudly announces that membership has reached an all-time high of 115. Five new members were recently accepted into the organization. The Membership Committee, under the able leadership of K. M. Halverson, has had its efforts to get more members of the purchasing profession into the Association pay off.



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Engineers the country over have found the solution to trouble free, leak proof sealing by specifying and using PRECISION "O" Rings and Dyna-Seals. PRECISION, the world's largest exclusive producer of these specialized products, has engineered and solved the industrial sealing requirements of hundreds of manufacturers. PRECISION "O" Rings and Dyna-Seals are performance proved, dependable seals against gasoline, fuels, oils, gasses and chemicals.

O PRECISION "O" RINGS—Compression molded from quality controlled compounds to meet SAE, JIC, ASTM, AMS and all military and commercial specifications and standards. Rigidly inspected. 195 standard sizes — specials to your specifications. PRECISION "O" Rings seal against pressures up to 5,000 psi. For static or dynamic installations in fluid power mechanisms, couplings, control valves, etc.

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For More Information Circle No. 296 on Inquiry Card—Page 17

DECEMBER, 1955

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association news

Milwaukee Ass'n Addressed on Human Relations

The October meeting of the Milwaukee Association of Purchasing Agents was held at Milwaukee Elks Club on Tuesday, the 11th. The guest speaker of the evening was Wendel F. Wood, supervisor of Research and Testing of the International Harvester Co. Speaking on the subject "Human Relations in Industry," the speaker said that in the past there have been many "gimmicks and gobble-de-gooks" concerning human relations. He pointed out that most important to make a program successful was the philosophy, attitudes and skills of the management which were employed. Charting a focal point of "Management Development Activity," he supported this with the four requisites of: (1) need for training; (2) knowledge; (3) experience; (4) evaluation of results.

At the Commodity discussion which preceded the dinner meeting, Edward B. Osborne, manager, Calendering and Coating Materials, B. F. Goodrich Chemical Co. discussed "Vinyl Plastics, Progress and Potential." A very interesting film of "Men and Molecules" dealing with the subject, was shown. Various applications of different plastics were discussed.

Chemical Buyers to Meet

The Chemical and Allied Products Buyers' Group of the National Association of Purchasing Agents will hold their regional mid-winter Meetings in Chicago, and New York City.

The Mid-Western meeting will be held in Chicago on January 24, 1956 at the Palmer House and the Eastern meeting in New York on January 31, 1956 at the Hotel Commodore.

The program for the Meetings was determined on the basis of a survey recently conducted by the Buyers' Group among chemical purchasing agents and will be announced at a later date.

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← on Inquiry Card—Page 17

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on Inquiry Card—Page 17→



MARCHANT GOES AUTOMATIC IN PLATING

Udylite Automatic Plating Machine Brings Big Savings to Calculator Maker

The same benefits Marchant Calculators, Inc., enjoy from the installation of a Udylite automatic plating machine can be yours—and for only a modest capital investment.

Better process control, reduction in operating and maintenance costs and improved work quality are the result of Marchant's installation of a Udylite Junior Full Automatic. In addition, they are now experiencing better ventilation, better and safer working conditions, manufacturing control with built-in instrumentation, greatly reduced materials handling and a minimum of rejects.

When the time came to install new plating facilities for their expanding business, Marchant naturally turned to Udylite. After a study of the Marchant problem Udylite engineers recommended the Udylite Junior with an automatic load and unload conveyor for the cadmium plating to fine tolerances of the many parts of the Marchant Calculator.

And so, another business friendship has been formed.

We at Udylite can help you improve quality and save money in your metal finishing operations. For quick response fill in the coupon below.

WORLD'S LARGEST PLATING SUPPLIER

We are interested in Udylite Automatic Equipment for our metal finishing operations. Have your salesman call.

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MADE WITH AVISCO RAYON
OUTLASTS ORDINARY
DISCS 7 TO 15 TIMES

Working with The Carborundum Company, American Viscose helped develop a revolutionary sand screen to replace conventional abrasive discs. It has a useful life 7 to 15 times greater for two reasons: First, the removed material flows out through the open mesh. Second, it is made from Avisco filament rayon yarn that stays "young and muscular" even when loaded with phenolic resins and abrasives. The result is an abrasive far more useful to you.

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For More Information Circle No. 298 on Inquiry Card—Page 17

DECEMBER, 1955

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chain link

America's First Wire Fence—since 1883



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Write to PAGE FENCE ASSOCIATION, Monessen, Pa., or look in Thomas' Register for listing of Page Chain Link Fence Distributors under "PAGE STEEL AND WIRE DIVISION," or see MacRae's Blue Book for listing under "FENCING, WIRE, LINK," or consult Sweet's Industrial Construction File. PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC. For More Information Circle No. 300 on Inquiry Card—Page 17



That's how a rivet fastens — and that's what Milford service is—from 5 Milford plants and 20 Milford offices. Try us and see for yourself — soon!

THE MILFORD RIVET & MACHINE CO.

Plants: Milford, Conn.; Norwalk, Calif.; Elyria, Ohio; Aurora, Ill.; Hatboro, Pa.
Offices: Atlanta, Chicago, Cleveland, Detroit, Fort Worth, Indianapolis, Newark, New York, Pittsburgh, Racine, St. Louis, St. Paul, San Francisco, Seattle, Norwalk, Calif.; Stratford, Conn.; Charlotte, N. C.; Seneca Falls, N.Y.; Jenkintown, Pa.; Westwood, Mass.

Headquarters for RIVETS and Rivet-setting Machines

For More Information Circle No. 301 on Inquiry Card—Page 17
For More Information Circle No. 299 on Inquiry Card—Page 17

USER SAYS TAP LIFE UP 43% ON THIS THIN-WALLED CASTING



...thanks to **FERROCARBO®**

Users everywhere report similar experiences. In fact, on 67 machining tests in 11 large machine shops, castings of gray iron treated with FERROCARBO averaged 89.5% greater machinability per tool than untreated castings. These premium castings are finer-grained, denser, stronger, yet they COST YOU NO MORE...because your foundryman, using FERROCARBO, makes worthwhile savings in raw material costs.

FOR FREE BOOKLET on FERROCARBO, citing actual case histories of faster machining, with longer tool life, write The Carborundum Company, Dept. 36, Niagara Falls, N. Y. 64-56

CARBORUNDUM®

For More Information Circle No. 302 on Inquiry Card—Page 17

association news

Kalamazoo Meeting Features Well-Rounded Program

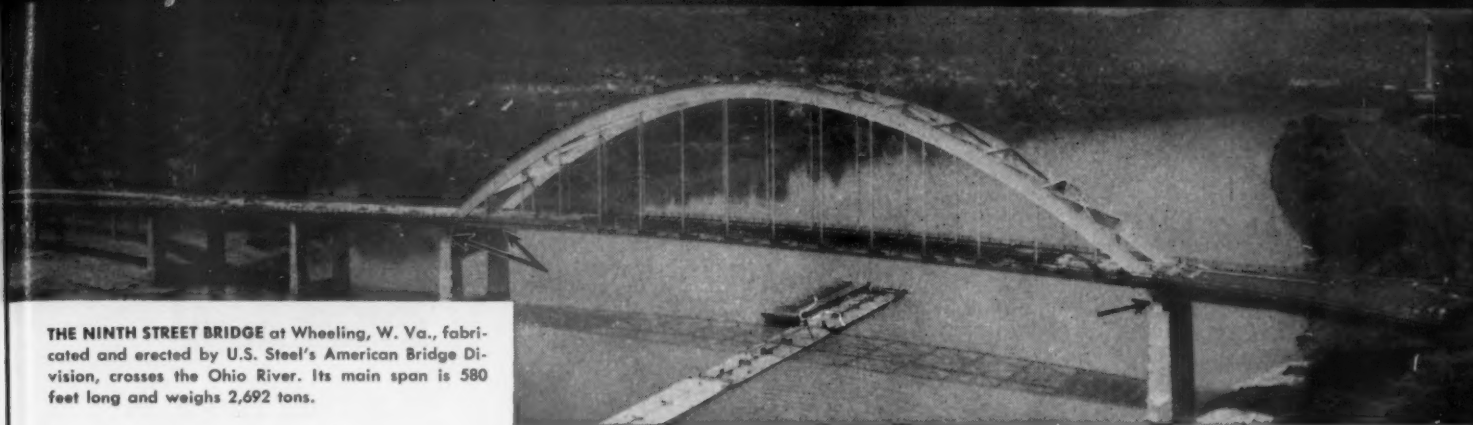
The Kalamazoo Valley Association of Purchasing Agents held its October meeting at the Harris Hotel. There were 45 members and guests present.

E. M. Anderson, purchasing agent for the Ingersoll Conditioned Air Div., Borg-Warner Corp. gave a report on steel. "Steel is tough to get at the present and will be tougher to get the first quarter of 1956 if the auto companies and the appliance companies keep up their record production. All companies are carrying over large inventories of steel due to unease of outcome of steel negotiations next summer. Hot rolled sheets will be scarcer next year because mills can add a few operations to make cold sheets and sell at a better margin. Auto Industry alone will take 54% of hot and cold rolled sheets next year. If auto and appliance companies don't keep up pace, steel stocks will pile up very rapidly. Work closely with mills, project your production schedules as far as possible to fit into projected mill deliveries."

J. P. Neilson, Purchasing Agent for the W-L Molding Co., gave a talk on "Whats My Line" in which he described his company and the products it makes, which in this case are plastic parts. H. P. Stratton, Purchasing Agent for the Miller Lumber Co. then presented third quarter business survey conducted among the members of the local association.

Main speaker of the evening was Dr. Helen Green, of the Business and Secretarial Division of Michigan State University. Her subject was "How You Can Help Your Secretary Help You." She elaborated on these four principles: better hiring, better wiring, better conspiring, better inspiring. She also mentioned there is an enormous number of "mature women" 40 to 55 who are widows or who have raised a family and have been trained for secretarial work. She said this group would stay on the job longer and would be more interested in their job than the younger woman who is only working long enough to buy a house, car and television set.

For More Information Circle No. 303 on Inquiry Card—Page 17→



THE NINTH STREET BRIDGE at Wheeling, W. Va., fabricated and erected by U.S. Steel's American Bridge Division, crosses the Ohio River. Its main span is 580 feet long and weighs 2,692 tons.

2,692-ton bridge "see-saws" on 4 knife edges of USS "T-1" steel!

The main arch of the Ninth Street Bridge at Wheeling, W. Va., stretches 580 feet over the Ohio River. The entire weight of this 2,692-ton span rests on 4 thin edges of USS "T-1" steel.

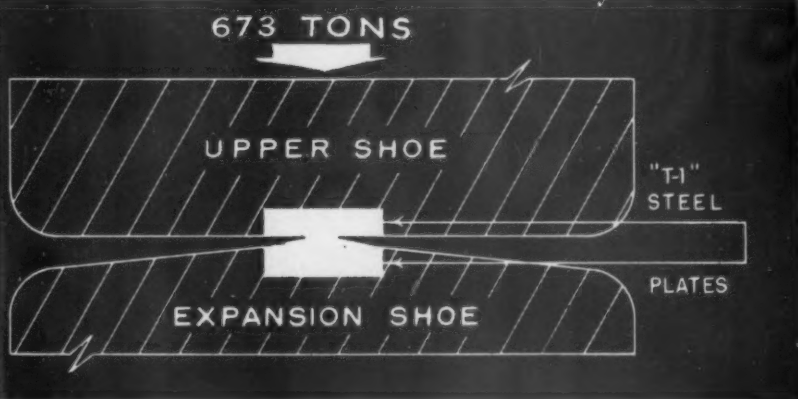
This main span has four arch shoes, each supporting 673 tons. At the greatest point of stress in each shoe is a thin plate of "T-1" steel, machined to a shallow knife edge. "T-1" steel was chosen because it has a minimum yield strength of 90,000 psi, and long life under extreme atmospheric conditions.

On bridge jobs of all types, use "T-1" steel where very *high stresses* are involved and where you need weldability without pre- or post-heating. "T-1" has excellent *impact resistance* at low temperatures. Its very high strength (105,000 psi minimum) makes it ideal for gusset plates, structural members and other component bridge parts.



THE ENTIRE MAIN SPAN rests on four arch shoes like this. Two plates of "T-1" steel are pressed into the heart of each shoe at the contact point. "T-1" steel's 90,000 psi yield strength enables it to withstand the high stress.

LIKE A "SEE-SAW." As the bridge expands laterally, the upper shoe rocks over slightly to relieve expansion stress. The plate in the lower expansion shoe has been machined to a knife edge and acts as a fulcrum for the rocker movement of the upper shoe. This knife edge of "T-1" steel supports 673 tons.



UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
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USS "T-1" CONSTRUCTIONAL ALLOY STEEL

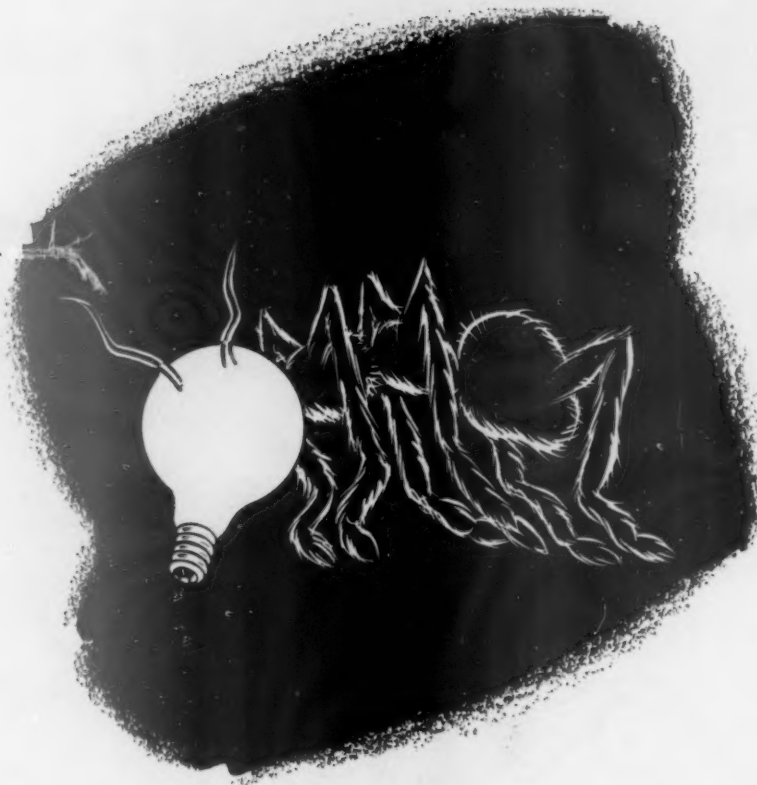


UNITED STATES STEEL

GOT

RESIST-ANTS

IN *Your* PLANTS?



Resist-ants march off with chunks of power where plant lighting efficiency lags. Keep free of these pests by putting into practice the suggestions in the *Champion Maintenance Manual** and by keeping an ample supply of efficient CHAMPION Lamps on hand.



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Free to anyone within the
borders of the United States.



CHAMPION LAMP WORKS

324 Lynnway, Lynn, Massachusetts

association news

St. Louis Ass'n Hears Talk by Noted Cleric

"The Lonely Duty In An Age Of Rights" was the subject of an inspiring talk by the Rev. Father Patrick J. Holleran, S.J., one-time president of St. Louis University and currently associate director of the St. Louis House of Retreats, at the regular monthly meeting of the Purchasing Agents Association of St. Louis, on October 25th. The reverend father made the point that nowadays everyone was insisting on his rights. Peace and security and the dignity of man, however, depended far more on the faithful fulfillment of duties than upon the enjoyment of rights.

At the same meeting, youthful John A. Moritz (just attained his 30th birthday) purchasing agent, Lee-Rowan Co., delivered a well-conceived, illuminating talk on "Know Your Members' Commodities." At the pre-meeting Educational Forum, the subject under discussion was "Traffic." Representatives of various carriers, railroads, freight forwarders, truck lines and air freighters were present to explain their respective services and to answer questions from members.

It was announced that the 1956 Executive Night Banquet was scheduled for January 24th at the Hotel Chase with Dr. Kenneth McFarland appearing as the guest speaker.

Lancaster PAs See Color TV Behind the Scenes

The October meeting of the Lancaster, Pa., Purchasing Agents' Club began at 4:00 P.M. on Tuesday the 18th at the RCA plant, Hew Holland Pike, Lancaster, Pa. After an address of welcome by two plant officials, Donald Corvey and Walter B. Hammond, members were conducted on a tour of the plant. Later, dinner was served in the private dining room of the plant. Then followed a rare treat at 7:45 when the group had the privilege of watching the "Milton Berle Show" on color television.



Cold flow resistance of TEFLON* and reinforced TEFLON (DUROID 5600) was tested at 700° F., under a torque of 35 pounds and a flange pressure of 1,000 p.s.i. After 2 hours the flanges were cooled and the bolts retightened. The flanges were then exposed to the heat for another 2 hours. Results are as pictured. The gasket of TEFLON (left) extruded extensively on all edges and lost all bolt torque. DUROID 5600 did not extrude and retained 15 pounds bolt torque, demonstrating significantly improved resistance to cold flow.

Greater Resistance to Heat Distortion



TEFLON (left) distorted badly when subjected to 720° F. and then cooled. Reinforced TEFLON (DUROID 5600) exposed simultaneously to the same temperature retained flatness, demonstrating greater dimensional stability at high temperatures.

SOME IMPORTANT TEST VALUES

Tensile Strength, MD, psi	2500
Tensile Strength, CMD, psi	1500
Compressibility, 5000 psi, %	8
Thermal Expansion Coefficient per °F., 73-140°F.	2.7×10^{-5}
Heat Distortion Temperature, °F.	
66 psi	500+
264 psi	500+
Deformation under Load, %	
1200 psi	2*
2000 psi	3*
Coefficient of friction against polished steel, static	.21
kinetic	.14
Specific Gravity	1.90

*Made up of actual flow and also of compression under load. Data to indicate breakdown between these two portions is being obtained.

ROGERS REINFORCES "TEFLON" TO REDUCE ITS COLD FLOW

Rogers DUROID 5600 is a combination of TEFLON and inert fibers, blended into an homogeneous sheet material. This new material is not a replacement or a substitute for TEFLON, but rather an extension of it. TEFLON has better electrical characteristics and dry lubricating qualities. DUROID 5600, however, has much of TEFLON'S resistance to chemicals, and is greatly superior to TEFLON in resistance to cold flow and heat distortion.

*Registered trademark of DuPont Company for its tetrafluoroethylene resin.

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PRODUCTS

DUROIDS—for Gaskets, Filters, Electronic Devices, etc.
SHOE MATERIALS—for Counters, Midsoles, Liners, etc.

ELECTRICAL INSULATION—for Motors, Transformers, Generators, etc.
PLASTICS—Special Purpose Molding Compounds and Laminates.

SERVICES

FABRICATING—including Combining, Coating, and Embossing.

DEVELOPMENT—Research and Engineering of New Materials, Parts, and Products.



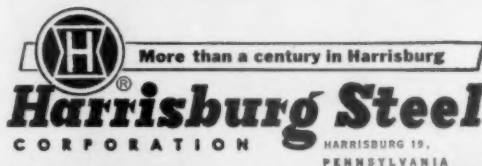


HARRISBURG Drop-Forged Steel Pipe Flanges are made to A.S.A. Standards. Threads are accurate in height, angle, taper and gauging. The Seamless Steel Pipe Couplings are manufactured to A.P.I. and A.I.S.I. Specifications and have threads that are accurate in form, height, angle and lead. The close tolerances that govern the threading

of Harrisburg Flanges and Couplings tend to speed up pipe line work, insuring quick, tight connections and reducing maintenance costs.

Harrisburg also manufactures Drop Forgings to any size or analysis. They are supplied as forged or completely processed to customers' requirements.

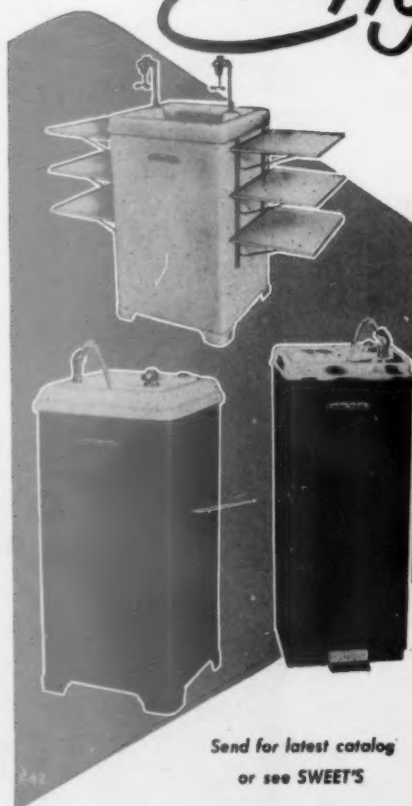
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literature and prices.



For More Information Circle No. 306 on Inquiry Card—Page 17

Engineered FOR LASTING SERVICE

... Whether it's a cafeteria cooler, a model with stainless steel or vitreous china top, or a type for remote installation, you can be sure of outstanding performance if it's Halsey Taylor.



Built with engineering precision, every Halsey Taylor provides the utmost in sanitation and convenience.



THE HALSEY W. TAYLOR CO., WARREN, OHIO

Send for latest catalog
or see SWEET'S

For More Information Circle No. 307 on Inquiry Card—Page 17

association news

Toledo Has Open Meeting in October

Members of the Toledo Association were invited to bring their subordinates to the monthly dinner held on October 20th at the Toledo Yacht Club and to the preceding forum. Two subjects of more than ordinary interest to purchasing personnel were discussed. At the dinner, Nathan Howard Gist, one of the nation's better known after-dinner speakers, had chosen as his subject "Imagination In Business." He gave a most inspiring address. At the forum, Standardization Chairman, Dick Rice, led a discussion on "Standardization — Problems and Answers."

Cleveland Ass'n Learns About Enamelling

The October meeting of the Purchasing Agents Association of Cleveland, held on October 20th was more than usually interesting. Dr. G. H. McIntyre, vice president and technical director, Ferro Corp., had been invited as guest speaker. He chose as his subject: "An Ancient Art Becomes A Modern Industry." He gave an illuminating insight into the application of enamel to metal for countless uses. He gave an actual demonstration of how the process works.

At the meeting, it was announced that the association is to be the guest of the Shrine Luncheon Club at 12:00 noon on November 4th at the Hotel Manger. The guest speaker will be Dr. Tennyson Guyer, Public Relations Dept., Cooper Tire Co. He will speak on "The Miracle Called America."

The Forum held prior to the October dinner reviewed some of the well-known ways in which purchasing executives make substantial savings for their companies. Especially interesting was the light thrown on some of the newer methods. The panel members were Fred Eshelman, Standard Oil, and Merle Miller, Geo. Worthington Co. S. P. Brownell served as moderator.



Best for meeting customer demand...all year round

United Air Lines Air Freight

Many businesses first learned the advantages of United Air Lines Air Freight by using it to "fill in" inventories during peak buying seasons.

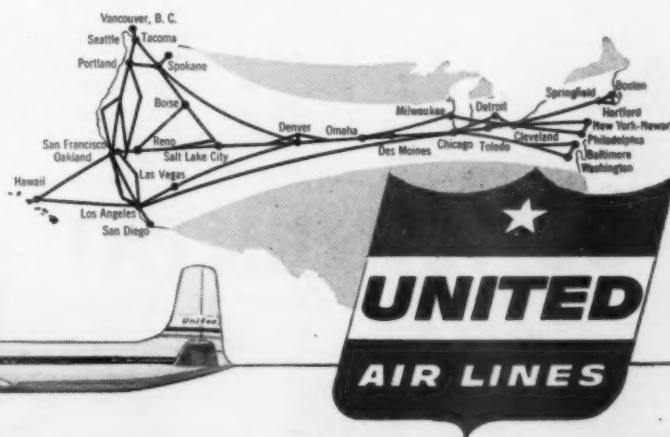
Now they use it profitably and enthusiastically throughout the entire year for many other good reasons—to maintain a better control of inventories... to improve customer service... to obtain higher prices through better service... to reduce the number of cancelled orders through faster delivery... to protect the condition and appearance of goods at destination by reducing in-transit

damage... and to bring down the cost of packing, crating and warehousing.

Why not plan to use United Air Lines Air Freight regularly during the coming year? The cost is lower than you might think. For example, a leading dress manufacturer ships children's dresses coast to coast for only about 14¢ each!

Remember, too, only United offers Reserved Air Freight space on all equipment—not only over its own routes, but world-wide through connecting airline agreements.

For speed, dependability and economy, learn the advantages of United Air Lines Air Freight Service. Call the nearest United Air Lines Representative or write for free booklet, "Industry's Flying Partner." Cargo Sales Div., Dept. C-12, United Air Lines, 5959 S. Cicero Avenue, Chicago.



Another of the Reasons Behind Brad Foote Quality—

DEBURRING



• Deburring of gears isn't normally included in specs or drawings. And we don't get paid for it. But here at BRAD FOOTE we take pains and expend many man hours on deburring—for we know that one tiny burr can ruin a \$100,000 machine.

• Examine your next shipment of gears. See whether your present supplier is painstakingly removing all the burrs. Find out how many hours your assembly department has had to charge against deburring. See another way in which BRAD FOOTE quality and extra attention to details saves you money.

• Prove to yourself the savings that BRAD FOOTE quality can mean. Let us quote on the gear requirements for your next program—whether it be radar equipment, diesel engines, etc. BRAD FOOTE has experience in providing gears for almost every specialized application and would welcome the opportunity of discussing your gear problems.

**BRAD FOOTE MAKES ALL TYPES OF GEARS—
IN A COMPLETE RANGE OF STYLES AND SIZES**

BRAD FOOTE GEAR WORKS, INC.

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For More Information Circle No. 309 on Inquiry Card—Page 17

CONTINENTAL

Brings you Fence . .



PRODUCERS OF Manufacturer's Wire in many sizes, shapes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Li-quer Finished, Bright, and special wire. ALSO, Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

with Improved Features for Longer Life

Continental Chain Link Fence is made of Konik steel containing copper, nickel and chromium for greater strength and rust resistance. Heavy zinc coating adds still more protection. Remember only Continental is made of Konik steel.

Write Today for Lasting Security

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STEEL CORPORATION • KOKOMO, INDIANA

Continental Steel Corp.
Kokomo, Indiana

Please send FREE copy of
"Planned Protection"—
complete manual on prop-
erty protection.

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For More Information Circle No. 310 on Inquiry Card—Page 17

association
news

New York PAs Hear Stock Exchange Veep

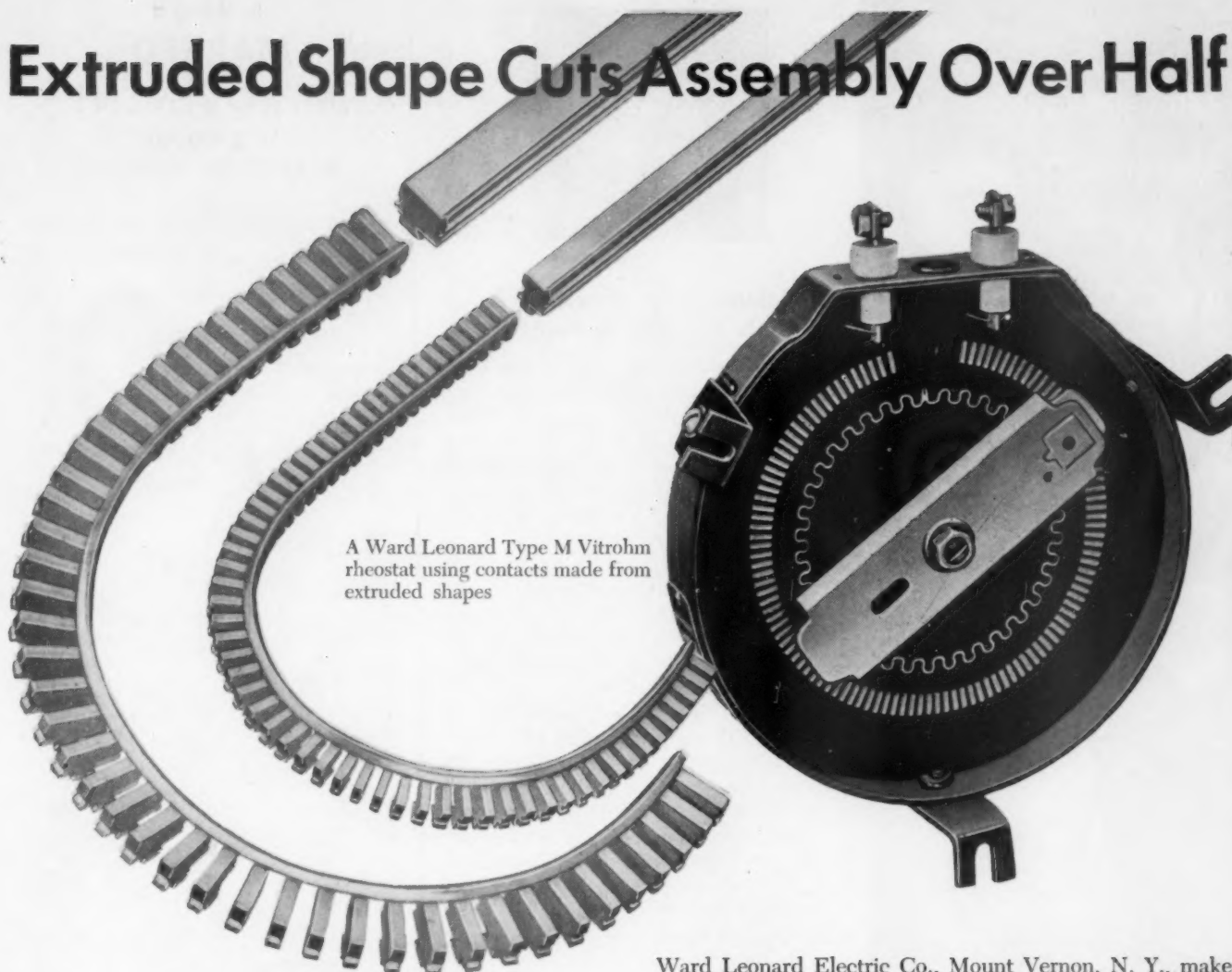
At the October meeting held at the Hotel New Yorker on October 18th, the Purchasing Agents Association of New York had as its principal speaker Phillip L. West, vice president of the New York Stock Exchange. He explained many workings of "market" not generally known to the public. He gave some advice concerning mergers and their effect on stocks and bonds and clarified some of the intricacies involved in selling stocks "short."

Prior to the dinner, a forum was held at 4:45 P.M. The topic under discussion was "How To Code Commodities And Vendors." Opening the discussion as guest speaker was C. C. Carmicle, director, Commodity Classification Service, Remington Rand Div., Sperry Rand Corp. He pointed out how commodity classification can handle a wide variety of problems relating to parts and materials, making possible the establishment of sound records and controls. Lawrence E. Opedal as moderator ably handled a spirited question period.

Central Michigan PAs Expertized on Aluminum

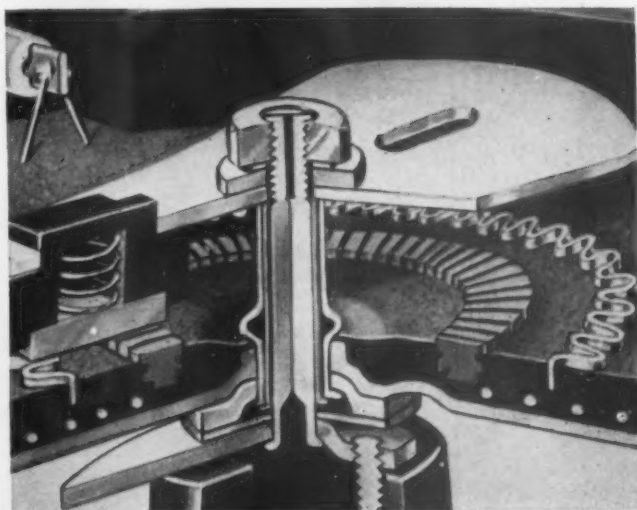
No one who attended the October dinner meeting of the Purchasing Agents Association of Central Michigan at the Hays Hotel, Jackson, Mich., on Tuesday the 18th, should miss any \$64,000 question on aluminum. With Hugo Bonning Hausen of Aeroquip Corp. in the chair, those present were treated by Richard Ladner, District Sales Manager, Aluminum Corp. of America to a full explanation of the latest uses of aluminum. Movies helped to highpoint the spoken descriptions. It was announced that the Xmas Party will be held earlier this year on the night of December 13th at the Walnut Hills Country Club. The earlier date is expected to facilitate attendance and not be as likely to clash with private festive affairs.

Extruded Shape Cuts Assembly Over Half



A Ward Leonard Type M Vitrohm rheostat using contacts made from extruded shapes

Ingenious application eliminates hand assembly, makes absolutely uniform stationary contacts in Ward Leonard power rheostats



CROSS SECTION VIEW of a Ward Leonard Vitrohm Type S rheostat showing how contacts are embedded in a vitreous enamel.

Ward Leonard Electric Co., Mount Vernon, N. Y., makes a line of high quality power rheostats marketed under the trade-name Vitrohm. Anywhere from 41 to 161 individual stationary contacts, or buttons, have to be embedded with their resistance elements in an insulating vitreous enamel—all contacts uniformly set and spaced, for uniform performance. Their patented process originally used buttons blanked out of sheet brass—hand assembled and spaced on a steel wire to hold them while the vitreous enamel was fired.

Ward Leonard refined the process and for four models now starts with the extruded shapes shown above. The stock is accurately slotted for correct spacing, forming a continuous line of buttons connected by a triangular "wire"—which is an integral part of the extruded shape. When sections are curved, the buttons remain uniformly spaced and oriented. After the button assemblies are embedded in the vitreous enamel, the connecting wire is easily milled off. Ward Leonard gets absolute uniformity with less effort and fewer rejects—it gets healthy dollar savings, despite the fact that more than half of the extruded shape is milled out.

Imagination applied to extruded shapes can pay big dividends—lower direct labor costs—fewer machining operations—less scrap—improved product quality. Your Anaconda representative will be glad to work with you. The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

5594

ANACONDA®

EXTRUDED SHAPES

Short cuts to a finished product

Always fasten
aluminum
with

ALCOA®

Aluminum
Fasteners

available at your local ALCOA
distributor - fill out coupon
for complete application
and specification
data...

ALUMINUM COMPANY
OF AMERICA
2248-M Alcoa Building
Pittsburgh 19, Pa.

Gentlemen:

Please send complete specification data
and samples of your aluminum fasteners.

Name _____

Title _____

Company _____

Address _____

For More Information Circle No. 312
on Inquiry Card—Page 17

association news

Commodity Expert Tells Buffalo PAs How to Avoid Losses

The October meeting of the Purchasing Agents of Buffalo was held at the Hotel Sheraton on Tuesday the 12th. President C. W. Parezo announced that a summary bulletin of duties and responsibilities of the association's various committees was in course of preparation.

Mr. Edward C. Roth, assistant to the resident partner, Merrill, Lynch, Pierce, Fenner & Beane, was the guest speaker. The subject of his talk was of special interest to purchasing agents whether in connection with their procurement jobs or from the point of view of private speculators. He spoke on "How To Own Commodities Without Losses," accompanying his talk with a most interesting film. At the September 14th meeting three new members were elected: Ellsworth H. Lang of Frontier Industries; William S. Perkins of Westinghouse Electric Corp., and Franklyn F. Schafer, Jr., of Hubbs & Howe Co.

Dayton Ass'n Has New 2nd V. P.

Phillip Hull of West Side Lumber Co., was appointed on October 18th as second vice president and membership chairman of the Purchasing Agents Association of Dayton, Ohio. He replaces Floyd Pansing of Hobart Mfg. Co., Troy, Ohio, who resigned when he was promoted to be factory manager of his company. Members were sorry to lose Floyd Pansing and his fine services for the association, while congratulating him on his new appointment.

There is also a note of sadness in the retirement on September 28th of Walter T. Loges as purchasing agent for Lowe Brothers Co. He had served the company continuously for 43 years and had been for many years an active member of the association. Congratulations are in order for Herbert W. Starick, purchasing director for many years for the Standard-Thomson Corp. He becomes purchasing agent of the city of Dayton on November 21st.

making a **MARKED** **IMPROVEMENT** In 2-COLOR PLASTIC LID MARKING



Popular new plastic container lids present unusual marking problems. Markem—source of better marking methods for 44 years—solves them. A new Markem machine prints complete label detail and decorative or trademark designs—in two colors—on polyethylene, styrene and paperboard lids, at production rates. Automatic feed and ejection equipment is available. If your problem is marking container lids—or some other part, product or package—let Markem help you. Write Markem Machine Company, Keene 34, New Hampshire.



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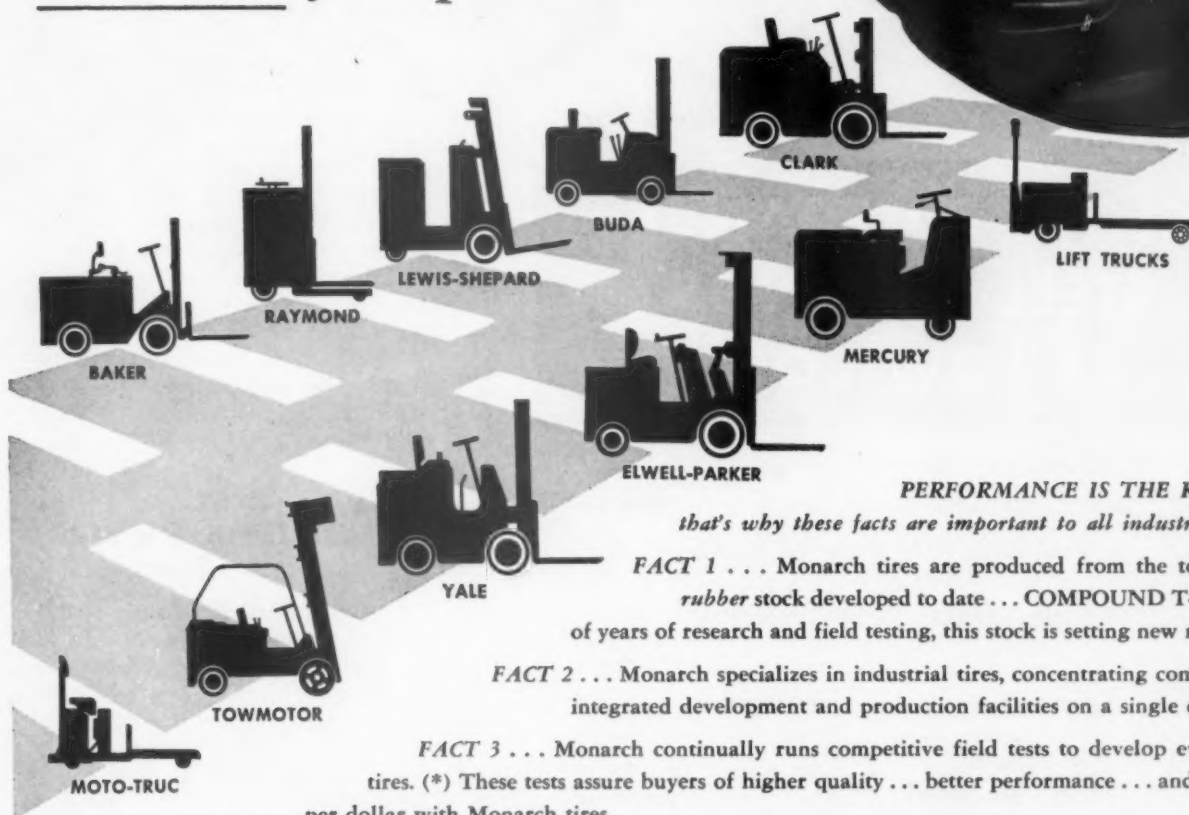
PURCHASING

MONARCH

INDUSTRIAL SOLID TIRES

Specified as original equipment

Demanded for replacement



PERFORMANCE IS THE KEYNOTE . . .

that's why these facts are important to all industrial tire buyers.

FACT 1 . . . Monarch tires are produced from the toughest *natural rubber stock* developed to date . . . COMPOUND T-48C. The result of years of research and field testing, this stock is setting new mileage records.

FACT 2 . . . Monarch specializes in industrial tires, concentrating complete and fully integrated development and production facilities on a single quality product.

FACT 3 . . . Monarch continually runs competitive field tests to develop even better solid tires. (*) These tests assure buyers of higher quality . . . better performance . . . and more ton-miles per dollar with Monarch tires.

FACT 4 . . . Monarch pioneered the first heavy-duty lug tread for industrial solids . . . a revolutionary design that has proven superior to ordinary thin lug treads.

FACT 5 . . . Monarch has a type and size of solid tire for every materials handling truck application.



THE
MONARCH
RUBBER COMPANY



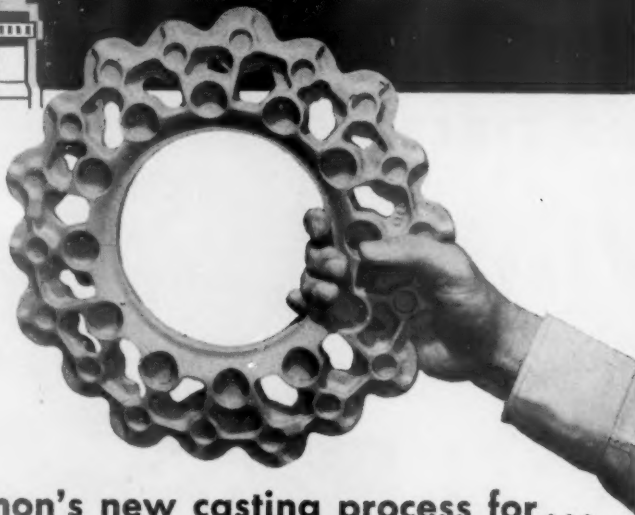
459 LINCOLN PARK • HARTVILLE, OHIO
7-255 General Motors Bldg., Detroit 2, Mich.

(*) FOR DETAILS AND PRICES, WRITE
TODAY FOR BULLETIN TD-200.

For More Information Circle No. 314 on Inquiry Card—Page 17



Typical of the intricate design and thin metal sections possible with the CERAMICAST process is this backing plate for a jet aircraft brake.



Lebanon's new casting process for...

CLOSE TOLERANCE STEEL CASTINGS AT LOW COST

FOR
QUALITY

TOLERANCES as close as $\pm .003''$ to $.005''$ per inch.

INTRICATE SHAPES: Ideal for castings of complex design.

THIN SECTIONS: Metal sections to 3/32 of an inch. Knife-like edges to .030" or less.

SMOOTH SURFACES: Variations held to 125 micro-inches or better.

FOR
PRICE

LOWER PRODUCTION COSTS: Jobbing wood or metal patterns can be used. Design changes quick and inexpensive.

REDUCED MACHINING COSTS: Smooth, accurate castings greatly reduce or eliminate machining.

SHORT LEAD TIME

ADAPTABLE TO MANY CASTING SIZES AND ALLOYS—casting weights up to one hundred pounds or more. Carbon steel, conventional low alloys, stainless steels and the superalloys.

SEND US YOUR BLUEPRINTS. Our sales engineering department will show you how the revolutionary Lebanon CERAMICAST Process can be adapted to your project design.



*produced under licensing agreement with Shaw Processes, Ltd., London, England.

LEBANON STEEL FOUNDRY

148 LEHMAN STREET LEBANON, PENNSYLVANIA
CARBON, LOW ALLOY AND STAINLESS STEEL CASTINGS

For More Information Circle No. 315 on Inquiry Card—Page 17

association news

Cincinnati Purchasing Unit Issues Annual Report

Purchasing agents in all fields will find an excellent example of reporting to management in the annual report of the Cincinnati City Purchasing Department, just released. Covering activities in 1954, the report was prepared under the direction of City Purchasing Agent John G. Krieg.

The report details the expansion of both the quantity and quality of the service rendered to the fifty-odd departments and agencies of the city government. It shows the variety of problems encountered in purchasing for the many diversified services rendered by the agencies to the taxpayers. Over all the report details the activities and accomplishments of the purchasing department staff.

In the 12 months covered by the report, the purchasing department issued 13,756 purchase orders for a total value of \$5,599,652.

PAANJ Told How to Best Procure Steel

A. M. Kennedy, Jr., General Manager of Purchases and Traffic for Westinghouse Electric Corp., Pittsburgh, was the guest speaker at the October 12th dinner meeting of the Purchasing Agents Association of North Jersey, held at the Robert Treat Hotel in Newark. He had chosen for his talk a subject on which he was well qualified to speak: "Procurement Of Steel And Its Relation To Present Market Conditions." In addition to his purchasing functions at Westinghouse, Mr. Kennedy is serving as chairman of the National Steel Committee of N.A.P.A. It was, therefore, not surprising that his talk was most illuminating and authoritative. Prior to the dinner, the Forum Committee, under the guidance of Frank Curran as chairman, had arranged a round table discussion on "Cost Reduction," with Brenton Riha of Igoe Brothers as commentator.

Woodman, Spare that tree-

There's More Money in
K-K Molded Plastic Frames



Up to now, most screen frames were made of wood—probably just because they always have been. And they got dirty, splintered, and warped—spoiling work and profits both.

So Tipp Supply Company of Tipp City, Ohio, asked if we could produce them in plastics. Result: a flat, strong, adjustable phenolic frame with amazing life; that's solvent- and ink-resistant; with molded-in grooves that won't splinter or spread. And, although the speed-hungry printers find that it gives greater accuracy and higher output, it's competitively priced. Orders are pouring in like homing pigeons.

So maybe *you* don't make silk screen frames. Do you have products or parts that might be better and cheaper in plastics? CAN YOU BE SURE TILL YOU'VE TALKED TO A CUSTOM MOLDER?

We've been giving the right answers to American industry for years. Call us and be *sure*.

KURZ-KASCH

Specialists in Thermo-Setting Plastics for 37 years

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BRANCH SALES OFFICES: New York, Mt. Vernon MO 4-4866
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Due to the unusual deep socket in the above Adjusting Screw it could not be formed from regular annealed and processed cold heading wire.

Keystone's metallurgist recommended Keystone "Special Processed" wire. The manufacturer has now standardized on "Special Processed" wire for this and other difficult cold headed parts. His results have been improved quality, increased production and lower cost per unit.

The superior grain flow characteristics of Keystone "Special Processed" wire provide the necessary upsetting and die forming qualities to withstand the terrific metal displacement in your most difficult cold heading jobs. Your inquiry is welcomed.



For More Information Circle No. 317 on Inquiry Card—Page 17

association news

Baltimore Association Holds Office Equipment Exhibit

This year marks the thirteenth time that the Purchasing Agents Association of Baltimore has held its exhibit of manufactured products. This time the display was devoted exclusively to office equipment and business machines. It was



Voted "most attractive"—the McBee booth.

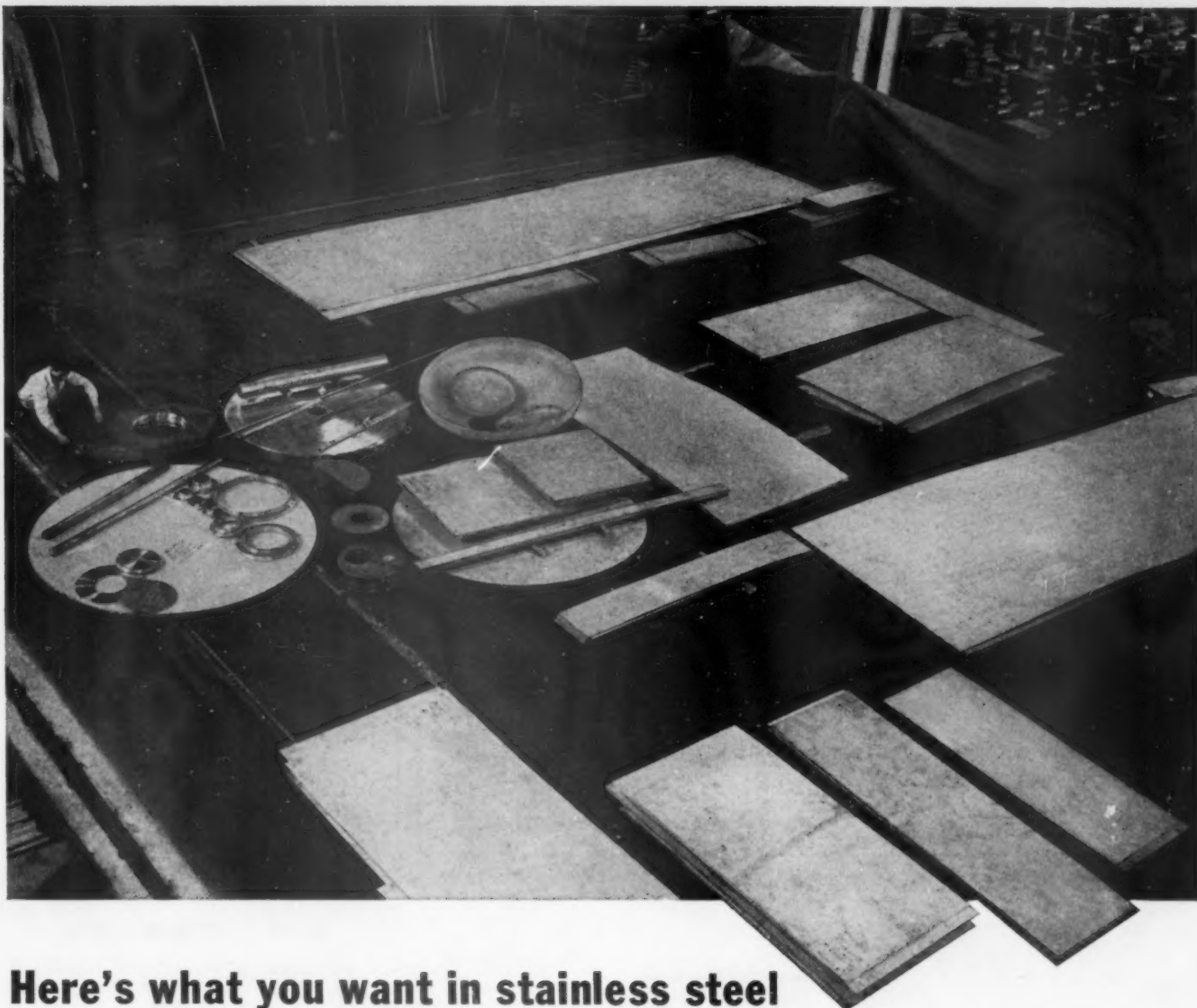


Voted "most informative"—the Friden booth.

held at the Emerson Hotel on October 4th, 5th and 6th. Forty-eight booths were occupied by thirty-one exhibitors, displaying the latest in new attractive office furniture, innovations in dry type photo copying machines, improved designs in calculators, duplicating and addressing machines.

On Wednesday night, October 5th, following the monthly dinner meeting of the Purchasing Agents Association of Baltimore, members attended the Exhibit in a body. A poll had been previously taken to determine the annual spending potential of the seventy-five members attending the meeting. This figure later announced by Mr. Herbert Gaston

(Please turn to page 238)



Here's what you want in stainless steel —the way you want it

Stainless Steel Plate . . . produced to almost any size or thickness, $\frac{3}{16}$ " and heavier, in rectangles or cut-to-shape. Carlson maintains what is probably the largest stock of stainless plate in the country—produced to highest chemical and metallurgical standards—ready for cutting to your requirements, and for shipment when you want it.

Stainless Steel Heads . . . spun or press formed to your order or taken directly from our stock of ASME and Standard flanged and dished heads—the *largest stock* maintained anywhere. In addition to supplying heads for tanks, heat exchangers, condensers and similar equipment, Carlson can fill a complete bill

of material including shell plates, flanges, rings, pads and other components.

Stainless Steel Forgings, Circles, Rings, and Special Patterns . . . Flanges, circles, rings, and sketch plates are cut from plate, or forged and rough machined to meet your specifications.

Stainless Steel Bars and Sheets (No. 1 Finish)

Complete Service . . . At Carlson the emphasis is on flexibility, efficiency and economy in producing what you want, when you want it. If you would like additional information about our service and products or, if you want to *place an order*—just let us know, we promise you prompt action!

write for CARLSON'S WEEKLY STOCK LISTS . . .
YOUR GUIDE TO WHAT'S AVAILABLE
IN QUALITY STAINLESS STEEL

Stainless Steels Exclusively
G. Q. CARLSON, INC.
THORNDALE, PENNSYLVANIA

Plates • Plate Products • Forgings • Bars • Sheets (No. 1 Finish)
District Sales Offices in Principal Cities



PLYMOUTH
Rubber Bands
**OUTSTRETCH
OUTLAST
ALL OTHERS**

ONE PIECE NO SEAM
Trade Mark Registered

REPLACEMENT OR A REFUND OF MONEY
Guaranteed by
Good Housekeeping
IF NOT AS ADVERTISED THEREIN

- Bands for Every Purpose
- Saves Time and Labor in Production
- We'll Make Them for Your Special Needs

PROMPT DELIVERY

NATIONALLY DISTRIBUTED . . . Sold Only Through Recognized Wholesalers
All Plymouth Standard Bands Made to Federal Specifications

PLYMOUTH RUBBER COMPANY, Inc., Canton, Mass.

For More Information Circle No. 319 on Inquiry Card—Page 17



Size-marked for
quick identification in 42 stock sizes

And these precision-machined solid steel collars stay put because they are held in place on the shaft by the famous UNBRAKO Self-Locking Socket Set Screw. Authorized industrial distributors carry complete stocks in sizes from $\frac{3}{16}$ " to 3" inclusive. Write for Bulletin 868. STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

HALLOWELL POWER TRANSMISSION DIVISION

SPS

JENKINTOWN PENNSYLVANIA

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association news

(Continued from page 236)

to those present at the Exhibit proved to be \$480,000,000.

Prizes were given for the most attractive and most informative booths. The "most attractive" was won by The McBee Company. Friden Calculating Machine Company was given the prize for the "most informative".

Attendance for the three days exceeded twenty-eight hundred. Chairman of the Exhibit Committee was Philip F. Brunner, Jr., of Maryland Shipbuilding and Drydock Company. Co-Chairmen were J. Herbert Gaston, Baltimore City purchasing agent and William N. Francis of Carey Machinery and Supply Company. Both Mr. Gaston and Mr. Francis are former presidents of the Purchasing Agents Association of Baltimore.

Twin City Ass'n Combines Plant Tour with Dinner

The October meeting of the Twin City Association of Purchasing Agents followed a different pattern from the usual regular meeting. Mr. Wayne Hamlett of the Continental Machine, Inc., invited the association to make a tour of the plant at Savage. The tour began at 3:30 P.M. and lasted until 5:30 P.M. After a short cocktail party, a steak dinner was served at 6:30 P.M. followed by a program of short duration.

Dallas Holds Two October Meetings

Two regular dinner meetings were held by the Purchasing Agents Association of Dallas, Texas, during October, both in the Brazilian Room of the Melrose Hotel. The October 13th meeting was taken up with a report on the Southwest Purchasing Conference and a discussion of Association affairs. For the October 27th meeting, the association had Dan H. Barr, assistant to vice president, Sales Dept., Oil Well Supply Div., U. S. Steel Corp., as guest speaker. He gave a fine talk on "People Are People."

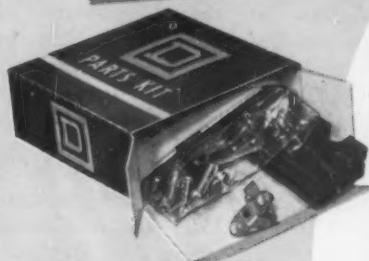
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PURCHASING

Qwik

Change

with **PACKAGED** MOTOR STARTER PARTS!



INTERLOCKS

A wide variety of quick-change, front-mounted interlocks adds flexibility for special applications



CONTACTS

Packaged replacement contacts are easily installed without disturbing wiring



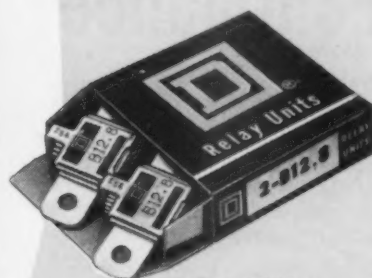
PUSH BUTTONS AND SELECTOR SWITCH

These Kits contain all parts necessary to make quick changes from standard starters to either push button or selector switch controlled devices



COILS

Screwdriver is only tool required for quick change of magnet coil to accommodate different voltages

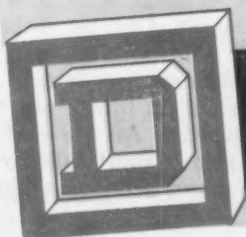


O.L. RELAYS

A wide variety of easily selected, packaged overload relay heater units provides quick changes to meet varying requirements for overload protection

EASY to Identify!
EASY to Buy!
FASTER to Install!

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS



SQUARE D COMPANY

4

reasons why
you can buy

P&A

BRASS

with
confidence

1

SPECIFICATIONS — We rigidly adhere to your standards . . . or we will analyze your needs and furnish metal for your specific requirements.

2

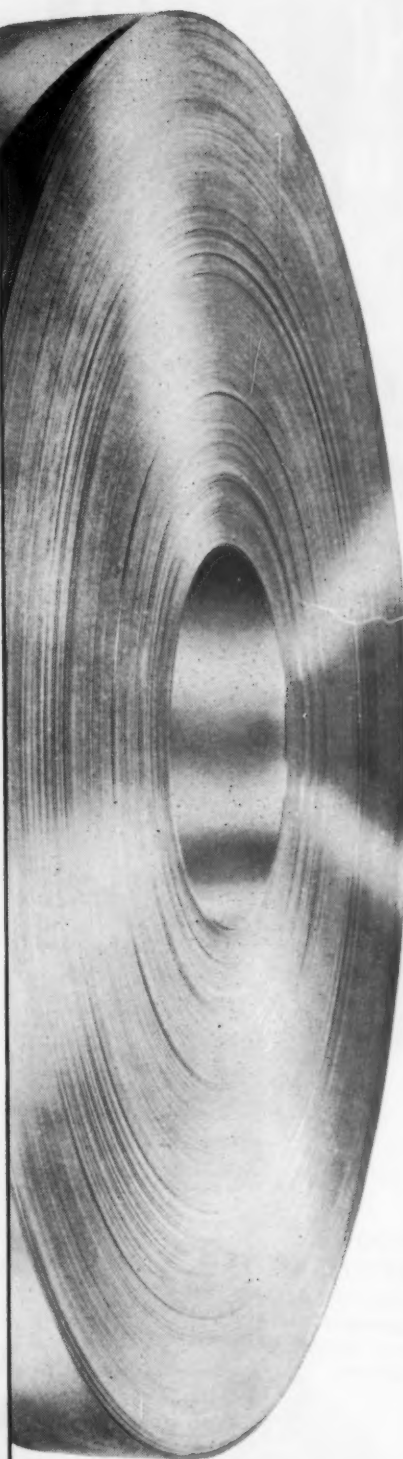
QUALITY — Consistent . . . we cast and roll our own metal; our step-by-step quality control assures you of the finest in metal plus the most from each pound.

3

SERVICE — We handle your order as if you were here in person. Call us for service — we go all out.

4

DELIVERIES — We ship on schedule.



THE PLUME & ATWOOD
MANUFACTURING COMPANY

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N. Y. Office:
220 Broadway

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association news

Los Angeles Ass'n to Conduct Seminars

During the fall and spring semesters, the Purchasing Agents Association of Los Angeles will conduct a series of monthly educational seminars at the University of Southern California. According to president John Hairgrove, the seminars will consist of panel discussions by leaders in the purchasing profession. The educational committee chairman, Gil Mirus has scheduled a number of timely subjects, including: "Cutting Costs By Analyzing Values;" "Purchasing And Profits;" and "Developing Tools For Measuring Performances." At the October 13th meeting of the association, a challenging subject "Are Salesmen And Purchasing Agents On The Same Team" was developed ably in the affirmative by the guest speaker, G. J. Ticoulat, v.p., Crown Zellerbach Corp.

Louisville Seller-Buyer Meet

Over 600 salesmen and buyers filled the Flag Room of the Kentucky Hotel when the Purchasing Agents Association of Louisville held its sixth annual Seller-Buyer Dinner, October 25th. The nationally known, Dusty Miller, was the guest speaker. His talk on "Folks I Like" sparked with humorous sallies which evoked roars of almost continuous laughter.

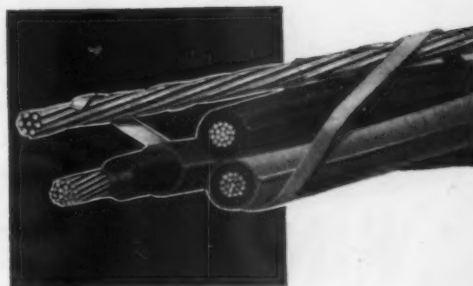
New Orleans PAs Won't Be Taken in

"Business Bandits" was the subject of an amusing and interesting talk by James Barr, manager of the Better Business Bureau at the regular dinner meeting of the Purchasing Agents Association of New Orleans at the St. Charles Hotel on October 10. The purchasing agents were alerted to many wily machinations which will in future put them on their guard. At the meeting, there was also a short talk by the association's own economist, Robert Elsasser.



New trend in high voltage cables

These high voltage cables illustrate a new trend in industry: the use of "self-supporting" aerial cable. At a fraction the cost of underground installations, insulated aerial cable is being used where insufficient clearances, repeated storm damage and danger to personnel make uninsulated overhead wires undesirable or hazardous. The preassembled cable with its built-in messenger can be installed in one operation. It is light, easy to tap and install, and permits long spans. This labor-saving cable design was pioneered by Okonite engineers. The Okonite Company, Passaic, N. J.



WHERE THERE'S ELECTRICAL POWER...

...THERE'S OKONITE CABLE



Model 606

NEW KIND OF POWER SWEEPER

*Engineered to outlast—
powered to outperform all others*



"Filter-Vac Dust Control"—
NO DUST BAG TO EMPTY! Fan
deposits dust in main hopper
automatically. (Pat. Pending)



Reach-Easy Controls: No loss
of sweeping time—all levers
can be operated by the driver
while he is seated.



Power Dumping, hydraulically
operated while driver is
seated.



Vacuum Attachment available
for cleaning shelves, bins,
equipment.



Extra Power. Model 606 has
about twice the horsepower of
any other sweeper.

**THERE'S A SIZE SWEEPER FOR EVERY
SWEEPING JOB. LP GAS POWERED
ENGINES AVAILABLE FOR ALL MODELS**

WAYNE MANUFACTURING CO.
1224 E. Lexington St. • Pomona, Calif.
☐ Please send me literature regarding new
Wayne Power Sweepers.
☐ Please arrange for demonstration.

Name _____
Title _____
Company _____
Address _____
City _____ Zone _____ State _____

Write for literature or on-
the-job demonstration

World's Largest Producer of Power Sweepers for Cities and Industry

For More Information Circle No. 324 on Inquiry Card—Page 17

association news

Local Mfrs. Ass'n Host to Syracuse PA Ass'n

The Manufacturers Association of Syracuse invited the Purchasing Agents Association of Syracuse and Central New York to attend their Presidents' Forum Dinner at the War Memorial on October 10th. At the dinner the premiere unveiling of "Americade" took place. This was N.A.M.'s dramatic exposition of America's progress and giving a preview of the U. S. in 1975. The principal speaker at the dinner was Edward T. Dickenson, N. Y. State Commissioner of Commerce. He discussed the economic potentialities of Greater Syracuse and the Empire State. He based his talk on the survey of the requirements of industry recently conducted by the PA Association of Syracuse for the State Dept. of Commerce.

Chicago Ass'n to Get Low-Down on Latin America

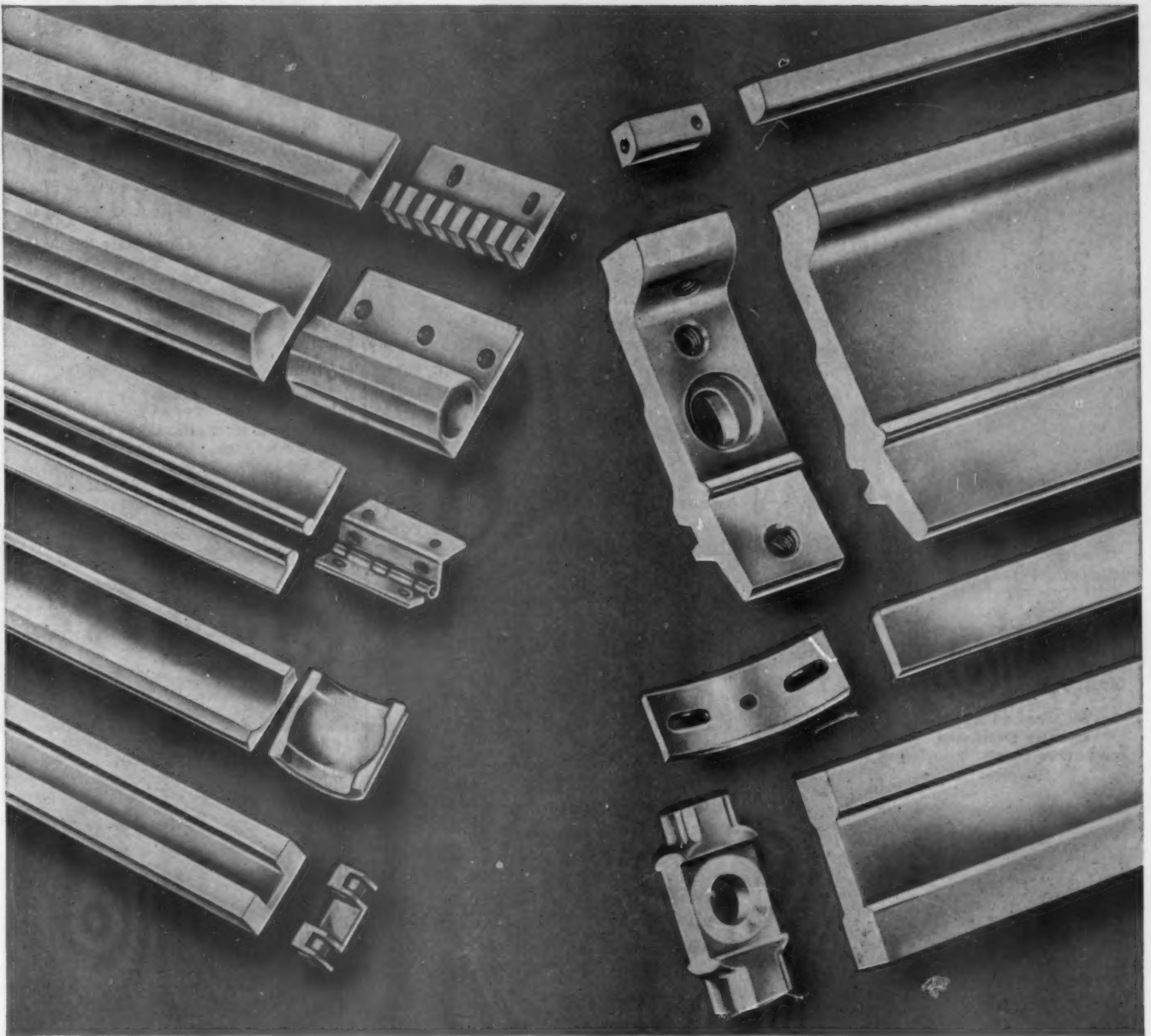
The November meeting of the Purchasing Agents Association of Chicago, held on November 10th at the Hotel Sherman, was scheduled as an open meeting for members, their assistants and buyers. A topic of much current interest was chosen by the guest speaker of the evening, Latin America. As a result of a recently completed tour in eleven South American republics, Dr. Carleton Rogers, minister of the First Methodist Church in Elgin, Ill., and one-time professor of psychology at Lake Forest College, gave a talk on "South America Confidential." He drew much of his material from the people themselves, and gave listeners an insight into the personalities of a wide cross section of our neighbors south of the border.

Activities of Washington P.A. Association

The monthly meeting of the Purchasing Agents Association of Washington was held on October 13th at the Olympic Hotel, Seattle.

(Please turn to page 244)

A SHORT CUT TO A FINISHED PRODUCT



REDUCE YOUR MACHINING OPERATIONS, REDUCE SCRAP

get a superior wrought metal product with Anaconda extruded shapes

Cost-paring possibilities unlimited: In few areas can imagination and ingenuity pay off so handsomely as when applied to the use of extruded shapes. Visualize your finished parts as cross-sectional pieces cut from a long extruded shape.

Costs come down, quality goes up: Extruded metal is *wrought* metal—tough, dense-grained, smooth-surfaced, and easy to machine. When you switch from cast parts, you eliminate rejects due to pits and porosity; you reduce machining, scrap...and finishing time.

A manufacturer of hosiery knitting

machines, for example, found he saved from 25-30% over cast brass. He makes 420 components from 12 different ANACONDA Extruded and Drawn Brass Shapes. He also gets the superior precision, balance, and long-wearing and bearing qualities in these parts, which must operate at high speeds.

Metals: Extruded shapes are available in copper, brass, bronze, and special copper alloys—in long mill lengths suitable for feeding into turret lathes or automatic screw machines.

Our experience at your service: The American Brass Company pioneered in

extruded shapes. The accumulated experience of the organization, its wide selection of dies, may help you short-cut production and save money.

We'll be glad to make suggestions based on your sketch or sample. Address: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

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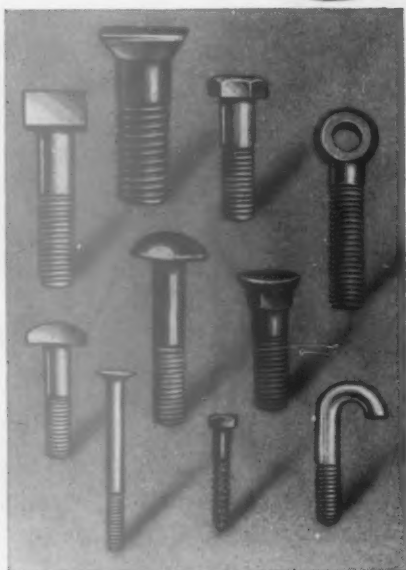
ANACONDA[®]
EXTRUDED SHAPES

Threaded Specialties

lower cost **TEE BOLTS** by an exclusive method

Among Pawtucket's many specialty products are these lower-cost tee-head bolts. Pawtucket's exclusive production method keeps cost low, dimensional accuracy unusually high and strength above standard. Pawtucket tee head bolts are made in standard sizes $\frac{1}{4}$ " and larger, or to your specifications. In any size, you can depend on a uniform Class 3 fit, if required.

All standard steels, stainless steels and non-ferrous metals, including Titanium



BETTER BOLTS SINCE 1882

PAWTUCKET



MANUFACTURING COMPANY

327 Pine St. • Pawtucket, R. I.
THE PLACE TO SOLVE YOUR BOLT PROBLEMS
T.M. REG.

The Bolt Man

For More Information Circle No. 326
on Inquiry Card—Page 17

association news

(Continued from page 242)

George H. Wilson presided with some 100 members and guests present. The main speaker was an ex-member, Albert N. Schreiber, president, Pacific Plastics Co. He gave an inspiring speech on the topic "Management Looks To Purchasing." Two meetings were held under the auspices of the Education Committee, on October 18th and 25th respectively, to discuss "Purchasing Fundamentals." On October 27th, there was a plant visitation to inspect the ultra modern facilities of the American Biscuit Company in Tacoma. A Manufacturers and Distributors Meeting has been arranged for Thursday night, November 10th.

Buffalo Association Outlines Committee Duties in Writing

Other Local Associations would do well to follow the practice of the Purchasing Agents Association of Buffalo. It spells out in writing the duties and responsibilities of each of its committees. This is a time-tested management principle. It helps eliminate over-lapping of responsibility and confusion. Here are some of the "job descriptions" for the Buffalo Association's committees:

Program Committee

The Program Committee shall be responsible for the program at all regular meetings held during the year. The Committee shall assign one or more meeting nights each to the Commodity and Education Committees and to any other Committee which would like to present a program of sufficient interest to the members. The Program Committee shall collaborate and follow through with these other Committees to insure that our regular programs are of the highest possible caliber. At meetings not assigned to other Committees, the Program Committee shall arrange for the meeting program. This Committee shall also handle the distribution of gifts at our Christmas meeting.

The Program Committee shall ar-

(Please turn to page 246)

SWACO

SAFETY HOPPER CAR WRENCHES

(Reversible Ratchet)

Handle is 3 ft. Long



Weights Approx. 26 lbs.

Its great strength makes the Swaco a safe wrench. Made of high tensile alloy castings, it is designed especially for opening drop-bottom cars in a hurry.

Ask your distributor about this
SWACO Car Wrench.

Or write for complete information.

Lowell Wrench Co.

WORCESTER, MASS.

Makers of SWACO Car Mover

S-5

For More Information Circle No. 327
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INDUSTRIAL BUYING GUIDE . . .
complete, yet compact enough to be
kept on desk



Features: Wholly industrial; no non-industrial listings. This, plus modern indexing system, makes it astonishingly complete yet compact.

Weight: 10 lbs.

Number of pages: 1,400

Contents:

- 1—Buying Guide
- 2—Trade name index
- 3—Mechanical data section
- 4—Special chemical section
- 5—Separate address section

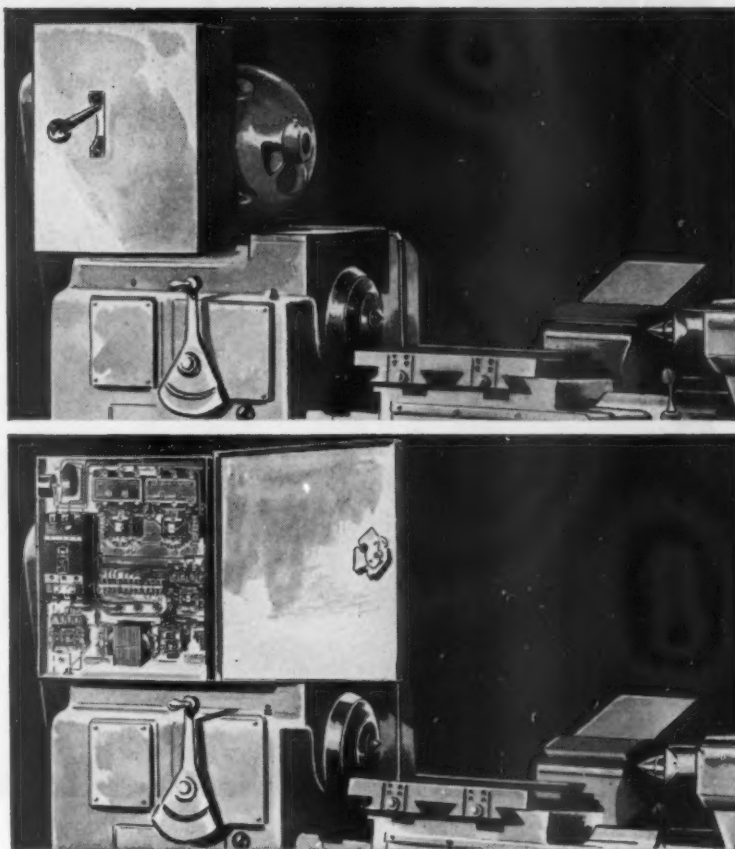
Conover-Mast Purchasing Directory

205 E. 42nd St., New York 17

PURCHASING

The right electrical protective equipment for your machine tools— Type ETI molded case circuit breakers with operating handle mechanism

For machine tool manufacturers who incorporate electrical protective devices in their products, I-T-E offers a complete line of Type ETI (adjustable instantaneous magnetic trip) molded case circuit breakers rated 3 to 600 amperes continuous, 250 volts d-c, 600 volts a-c, and operating handle mechanisms.

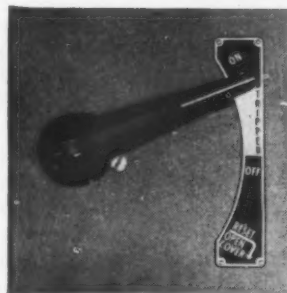


TYPE ETI MOLDED CASE CIRCUIT BREAKERS OFFER THESE OPERATING ADVANTAGES

When applied to motor circuits in conjunction with a properly selected motor running over-current protective device, they provide positive protection. Circuit breaker provides short circuit protection with trip setting adjusted slightly above the motor inrush current through medium of external trip adjustment feature. Motor running overcurrent protective device guards against motor overloads.

- Common trip principle opens all poles whenever overload occurs
- Trip-free toggle mechanism prevents breaker from being reclosed against overload or short circuit conditions
- No replacement of parts necessary—anyone may restore service

I-T-E OPERATING HANDLE MECHANISMS OFFER THESE ADVANTAGES



A simplified operating mechanism, easily assembled, which can be readily mounted on front door of control panels; panel preparation requires simple punching or drilling operation; available for all breaker sizes in uniform styling and design.

- Right- or left-hand operation
- Ease of installation—drilling template and instructions provided
- Interlock provisions—door cannot be opened with circuit breaker in "ON" position
- Visual handle indication—shows when circuit breaker is "ON," "OFF," "TRIPPED"
- Slamproof—self-centering spring loaded engaging cam automatically locates breaker handle
- Padlocking provisions—operating handle can be locked "ON" or "OFF"

For more information or catalog literature, write Small Air Circuit Breaker Division, I-T-E Circuit Breaker Co., 19th & Hamilton Sts., Philadelphia 30, Pa. Or contact your local I-T-E District Sales Office.

I-T-E CIRCUIT BREAKER COMPANY Small Air Circuit Breaker Division





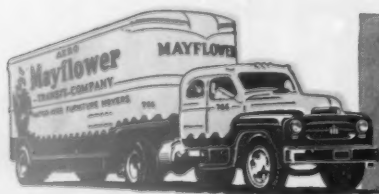
Luxury Liner for Household Goods

WHEN YOU MOVE THE MAYFLOWER WAY

► "What will happen to our furniture?" That's what most of the people you move long-distance want to know. You can ease their minds quickly and simply just by choosing Mayflower Service. Mayflower vans are all up-to-date models, especially built to our own specifications to provide greatest safety for household goods. They have no tailgates, so everything rides safely locked inside. Interiors are smooth and dustproof, construction sturdy and weathertight, protective equipment complete. Nothing is left to chance on a Mayflower move... just another big reason why it will please your people, save you and your company time and money.

AERO MAYFLOWER TRANSIT COMPANY, INC., INDIANAPOLIS

Mayflower Service is available through selected warehouse agents throughout the United States and Canada. Your local Mayflower agent is listed under Moving in the classified section of your telephone directory.



America's Finest Long-Distance Moving Service
For More Information Circle No. 329 on Inquiry Card—Page 17

association news

(Continued from page 244)

range for at least one—and preferably two—plant visitations during the year, such visitations to be held on the afternoon of our regular meeting night. It has been the practice to have one plant visitation in conjunction with Niagara Falls Night in May.

With the exception of the Christmas Party, Salesman's Night in April, Niagara Falls Night in May and Election Night in June, the Program Committee shall make changes in suggested schedules where it seems desirable to do so. The Program Committee shall prepare attractive copy for the Bulletin Committee prior to each meeting. This copy shall present the program for the forthcoming meeting and shall comment on the activities for the previous meeting. The Program Committee may assign this function to those other committees which may be presenting the program on the particular night.

Attendance and Reception Committee

The Attendance and Reception Committee shall maintain the attendance records at all meetings and shall maintain and distribute the name badges. It is suggested that this Committee maintain a card index file of attendance of members and that they contact those members, who are absent for three or more meetings to ascertain the reason for such absence. This contact should be done diplomatically and only to obtain information that will help us to make the meetings attractive to a greater percentage of our membership. This Committee shall greet all members and particularly try to seat new members with older members to whom they have been introduced, for at least the first three meetings the new members attend.

Conference and Convention Committee

The Conference and Convention Committee shall be responsible for publicizing to the membership all

(Please turn to page 248)

Spring Washers

**FLAT-CUPPED
SLOTTED
WAVY
CURVED
FINGER
BELLEVILLE**



**SEND FOR
LIST OF WASHER
DIES IN STOCK
AT OUR PLANT**

Hundreds of different dies are on hand, the result of years of experience in this field, ready to use, if one fits your need. It will pay to look through the list—get a quotation.

*Loading Springs
for ball-bearings
carried in stock*

WALLACE *Barnes* COMPANY

DIVISION OF ASSOCIATED SPRING CORPORATION

**BRISTOL, CONNECTICUT
and SYRACUSE 9 (Solvay), NEW YORK**

ACE-HIDE®



the new molding material that's
both **TOUGH** and **GENTLE**

Ace-Hide is a new rubber-plastic molding material designed to take a beating without showing it. Its toughness, smoothness, resilience and excellent chemical resistance have already led to wide-spread use for things like chair arm pads, scuff guards, acid pails and golf bag tops.

Ace-Hide is a special blend of rubber with plastic, hence is light in weight and has good electrical and thermal insulating properties. Rigidity and impact strength (to 10.0 Izod) can be varied to suit. Takes inserts well. Surface is smooth, shiny. Does not develop flexing cracks, and ages well. Ace molding facilities offer wide range of sizes and shapes. We'll be glad to make specific recommendations. Write today.

Ace-Hide and many other hard and soft rubber, plastics, and rubber-plastic blends are described in 80 pg. ACE Handbook. Write for your copy today!



Ace-Hide acid pail



Molded top for golf bag



Large molding is lid for beverage cooler



ACE rubber and plastic products

AMERICAN HARD RUBBER COMPANY
93 WORTH STREET • NEW YORK 13, N. Y.

For More Information Circle No. 331 on Inquiry Card—Page 17

association news

(Continued from page 246)

information in connection with conventions and conferences, obtaining and distributing the registration forms, arranging and handling all group transportation to and from the events, special rooms for our Association and all other details.

Bulletin Committee

The Bulletin Committee shall be responsible for the publication of the monthly Bulletin and its distribution to all members and Gaveliers. As the official organ of the Buffalo Association, the Bulletin should be a piece of "must" reading for each member. The Committee shall be responsible for following up and obtaining copy from all of the Officers, Committee Chairman and others. Printed matter for all functions of the Association shall be purchased by the Bulletin Chairman.

Education Committee

The Education Committee shall be responsible for the program at one or more of the regular meetings during the year in collaboration with the Program Committee. These programs should aim toward improving the background and experience of our members in their Purchasing operations. The Education Committee Chairman shall also be a member of both the Commodity and Program Committees. It is recommended that the Education Committee be prepared to advise the members of any publications that are available through N.A.P.A. or other sources that would be helpful to them. This Committee shall collaborate closely with the University of Buffalo and any other educational institution conducting courses in Purchasing. This Committee shall also recommend and conduct special Education Meetings when there is sufficient interest in them on the part of the membership.

**FOR MORE INFORMATION
ON PRODUCTS IN
THIS ISSUE
USE INQUIRY CARD—PAGE 17**

Built for Severe Service

All O-B Gate Valves feature
the self-adjusting Flexitite Disc®.
Its unusual design combines advantages
of both the solid-wedge disc and
the two-piece disc. Order O-B gates from
your Ohio Brass distributor.

O-B VALVES



Ohio Brass
MANSFIELD  OHIO, U.S.A.

4559-V

TOLEDO No. 68 PORT-A-PONY POWER PIPE THREADER

Weights only
26 lbs.



BUILDERS OF THE WORLD'S FINEST PIPE TOOLS
TOLEDO
PIPE THREADERS • PIPE WRENCHES • PIPE MACHINES

LIGHT • VERSATILE • TIMESAVING

Here's a new tool that's so chock full of uses it is difficult to list all of them. Though originally designed as a means of power to operate pipe threading tools, it is a highly desirable unit for many other uses. For example: Opening and closing large valves, winching operations, pulling wire through conduit, hoisting operations, operating augers, cranking operations. The PORT-A-PONY is a powerful portable power drive that will greatly reduce manual labor. Weighs only 26 pounds. Rugged construction, sturdy reversible 1/2 H.P. motor. Send today for new colorful bulletin on the "TOLEDO" No. 68 PORT-A-PONY with all applications illustrated. Remember — if it bears the familiar "TOLEDO" label, you know it's a dependable product. Manufactured by Thread-Ezy Mfg. Co., Subsidiary of The Toledo Pipe Threading Machine Company, 1445 Summit Street, Toledo 4, Ohio.

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on Inquiry Card—Page 17

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association news

Denver PAs Visit School of Mines

The first fall meeting of The Purchasing Agents Association of Denver, held on October 20th, was a visitation to the Colorado School of Mines. After a sumptuous steak dinner, a film, *Silver Diploma*, was shown, accompanied by an address by G. Duncan Wimpers, assistant to the president, Colorado School of Mines. Afterwards, the members were conducted on a trip through the famous Mineral Museum by Dr. Harlan Johnson.

The November meeting will be held on the 17th. It will be Executives Night so a good turn out of purchasing agents with their bosses is expected to hear the guest speaker, Mayor Will F. Nicholson of Denver. New members of the association are Joe Devlin of Heckathorn, Edward Tate, and Louis S. Middlemist.

BOOK REVIEWS

Developing Your Executive Skills

by Auren Uris
McGraw-Hill Book Co. \$4.50

As purchasing grows in stature and plays an increasingly important role in management, the executive skill of the purchasing agent becomes critically important. Here is a new kind of book designed to help sharpen executive skills. The author discusses natural executive techniques in detail and explains how they can be applied to best advantage. There are practical, down-to-earth chapters dealing with decision-making, administration, planning, executive problem solving, communication. Such vitally necessary requisites for the executive as working with subordinates, correspondence, interviewing, and sharpening mental focus and memory are discussed in detail. The book will

(Please turn to page 252)

HEAT TREATING as an INDEX



J. G. Sorenson

CHAIRMAN, THE CINCINNATI GEAR CO.

The continuing demand for improved quality in gearing used throughout industry is closely reflected, we think, by the yearly increase in the percentage of our gear output that is scientifically heat treated and specially hardened. This constant pressure for better, tougher, quieter gears carries over into all phases of their manufacture. Gone are the days when a gear was simply any old blank with some teeth cut in it. Even in the past 15 years the change has been dramatic. The necessity to meet steadily increasing requirements in pitch line velocity and stresses has dictated better steels, closer tolerance, more critical tempering and hardening.

Heat treating is, in fact, one of our fortes. We have in conjunction with our modern gear manufacturing facilities a complete heat treating plant second to none in the gear industry. Because we are not dependent on outside sources for our heat treating, we obtain obvious advantages in delivery and cost as well as in quality. This is one big reason why we have earned such an enviable reputation for consistently high quality custom gear work, regardless of the requirements. And it is a typical indication of our continuous year-in and year-out efforts to supply gears that meet industry's most exacting demands.

THE CINCINNATI GEAR CO.

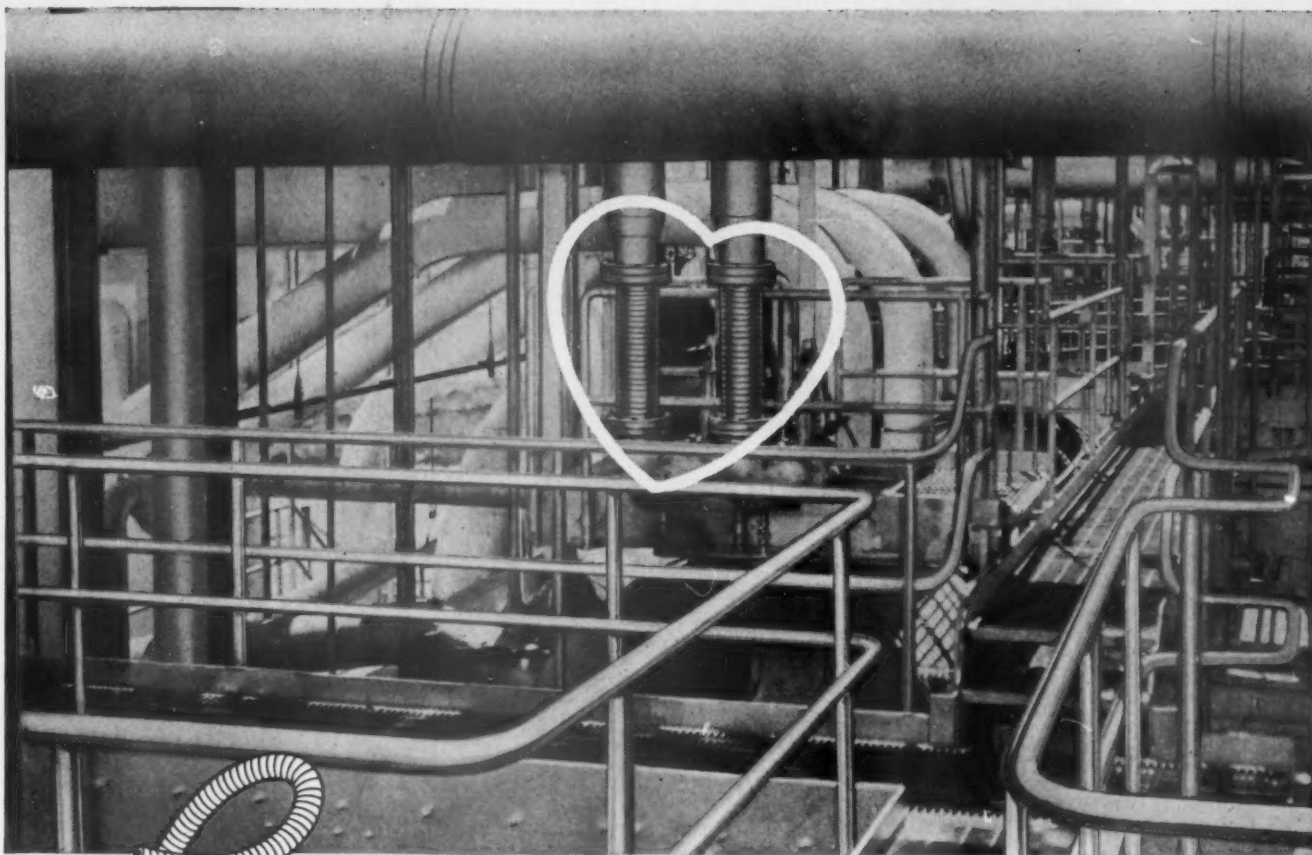
CINCINNATI 27, OHIO

"Gears — Good Gears Only"



For More Information Circle No. 334
on Inquiry Card—Page 17

PURCHASING



enflex CUSHIONS THE BLOW IN BLOW-OFFS

Flexible tubing absorbs shocks from sudden release of superheater steam

Shock . . . temperature . . . pressure . . . all suddenly combine to liberate steam at 900°F. and 850 psi. Pushing out in every direction as blow-off valves release a flood of energy . . . the expansion joints get the full impact, and the full responsibility of keeping the steam headed toward the stack.

It's not the job for a weak-kneed joint, and operators of this utility plant knew it. They played it safe and put lengths of Penflex Galvanized Steel Interlocked Tubing (8" I. D.), flanged at both ends, as expansion joints on forty-two units throughout the entire plant.

The joints are dependable because the tubing is strong . . . tight . . . and flexible enough to "give" with the shock of sudden pressure and thermal expansion.

This, and hundreds of other applications in the steam and Diesel power fields, are filled by Penflex tubing. Proper selection and application of flexible tubing is a study in itself—one which we call "Flexineering." Call our engineer to show you how it is applied to your problems, or write for our "Flexineering" booklet. There's no charge or obligation.

Pennsylvania Flexible Metallic Tubing Company, Inc. 7218 Powers Lane, Philadelphia 42, Penna. • Branch Sales Offices: Boston New York • Chicago • Houston • Cleveland and Distributors in Principal Cities



FLEXIBLE TUBING, AUTOMATIC BARREL FILLERS, PNEUMATIC RIVET PASSERS, ACCESSORIES AND FITTINGS

MAKE IT or BUY IT?

Let's
find out how
to solve **YOUR** stamping problem:

If your company uses reasonable quantities of formed parts in steel, steel alloys, brass, inconel, magnesium, aluminum, or titanium, you have a problem: should you **make** or **buy** the stampings you need? To make the **right** decision — a decision that may **save** or **cost** your company many thousands of dollars — you must ask and answer many questions on labor force, plant space, machinery, costs, design, operations, production level, future volume.

We would like to help you reach a good decision, favorable to your company's long-run profit picture.

At this moment, **we don't know the answer** to your problem — but **let's find out!** Since no two stamping jobs are ever exactly alike, **Presteel** is proud of being able to offer a proven procedure to arrive at the right answer. Our engineers, backed by Worcester Pressed Steel's 72 years of intensive stamping experience, will sit down with you at your convenience, isolate the facts that count, and help you get all the basic information for you to make an impartial, sound decision.

For a "Make it, or Buy it" consultation with a Presteel representative, write us today. There is no charge or obligation.



Your part has a
precedent at Presteel.

Worcester Pressed Steel Company

630 Barber Ave., Worcester 6, Mass.

Please ask your representative to call. ☐

Name _____

Title _____ Company _____

Street _____

City _____ Zone _____ State _____

(Continued from page 250)

provide the purchasing executive with a lot of good advice on how to successfully handle administrative problems that arise from day to day.

Personnel Audit and Appraisal

by Thomas J. Luck
McGraw-Hill Book Co. \$6.00

Handling personnel is a big part of every purchasing supervisor's job. Personnel problems can be handled more intelligently with a familiarity of methods for gathering information about the performance of the personnel function. Such information makes for intelligent decision-making. *Personnel Audit and Appraisal* shows how tests, job analysis, guided interviews, employee-attitude surveys, and performance records can give supervisors a complete inventory of the people working for them.

How to Gain an Extra Hour Every Day

by Ray Josephs
E. P. Dutton & Co. \$2.95

This book summarizes an investigation of the author on how top executives eliminate wasted time and accomplish more as a result. Presented are ideas and case histories on saving time by organizing your work, bettering your work habits, saving time in reading, accomplishing more in conferences, etc. All-in-all 243 time-saving techniques are presented which have been developed by some of America's best-known and busiest people. Many of them could profitably be applied by the busy PA.

Screw Machine Products Directory Available

Its 1955-56 buying directory listing the location and facilities of all NSMPA members, has just been published by the National Screw Machine Products Association, 2860 East 130th Street, Cleveland 20, Ohio.

The 74-page directory is designed to assist buyers in quickly locating sources of supply for their screw machine products requirements.

(Please turn to page 256)

For More Information Circle No. 336 on Inquiry Card—Page 17

New multi-purpose 10 lb. Ansul Extinguisher can simplify your fire protection problem



Lightweight, easy-to-operate Ansul 10-pounder gives fast, effective results even when used by women employees.



The 10-pounder stands up under rugged road use. Built to give dependable service after extreme exposure. Listed by Underwriters' Laboratories.

New rugged unit gives you high fire killing rating, light weight, modern design

The new Ansul 10-pounder is *designed and constructed* for all-around plant use—wherever dry chemical protection of this capacity is called for. It is ideally suited for truck protection, other outdoor hazards and indoor use. This multi-purpose advantage means that you have fewer models of extinguishers to service and a less complicated training program to maintain.

The high fire killing rating (B1, C1) of this unit gives you *effective* protection the *instant* it's needed. Another advantage of the Ansul 10-pounder is its light weight. This feature is important where women are called upon to lift and operate the unit. This extinguisher is also modern in appearance. It was styled by Raymond Loewy to be *seen* in any location—in the office, laboratory, plant, or on a truck.

Have the Ansul Man review your class B and C hazards, those involving flammable liquids, gases, and electricity. He will show you how the Ansul 10-pounder can make your fire protection program easier to administer, more economical to maintain.

Call the Ansul Man!

Get in touch with your local Ansul man through the "yellow pages" or write ANSUL CHEMICAL COMPANY, Fire Equipment Division, Dept. F-85, Marinette, Wisconsin. Write Ansul for your copy of new Fire Equipment Catalog.



**Here's a
sound approach**

**to economy
that may be
applicable
in your plant**

Simply buying new brushes as old ones wear out is as expensive as it is haphazard. With a *planned* purchasing program, it is possible that you can save from 10% to 50% of present brush costs. Here's how:

First, ask your brush supplier to help you conduct a through-the-plant survey of the brushes you now use (be sure to include *all* types of brushes—paintbrushes, maintenance brushes, as well as power-driven production brushes). Then determine whether you are currently using the brush best suited for each particular job.

Next, investigate the properties of "Tynex" nylon bristles as they apply to the service conditions (such as grease, oil, chemicals, heat, etc.) under which your brushes must perform. "Tynex" nylon bristles have excellent abrasion and heat resistance, long flex life, good resistance to most chemicals and oils . . . a combination of properties that is unsurpassed by any other bristling material!

You will undoubtedly find that there are a number of types of brushing applications where brushes with "Tynex" bristles will do a better job at lower use cost. Your brush supplier will be happy to work with you in making brushes to your specifications.

Du Pont has information about "Tynex" bristles which may be helpful to you. Use the coupon below to get this information promptly (if possible, please describe your specific brush problems).

Specify brushes with **TYNEX**[®] nylon bristles.



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

If you are interested in the dollar-saving advantages of brushes bristled with "Tynex," mail this coupon today.

E. I. du Pont de Nemours & Co. (Inc.)
Polychemicals Department, Room 6612, Wilmington 98, Delaware
I would like to learn more about the advantages of "Tynex" nylon bristles in brushes for industry. My specific brush problems are:

• Name _____
• Title _____
• Firm _____
• Address _____
• City _____ State _____

"Tynex" is the registered trade-mark for Du Pont nylon bristles

For More Information Circle No. 338 on Inquiry Card—Page 17



Stanley Electric Hammer Speeds Up Maintenance and Construction Jobs

The Stanley Electric Hammer is a powerful, light weight, well balanced tool. It is used to drill, chip and channel in concrete, stone and brick...to chisel wood...to scale rust...to tamp concrete...to do every hammering job. Wherever it is used the Stanley Electric Hammer speeds up the job—in some cases it is 32 times as fast as hand hammering.



THREE KITS TO CHOOSE FROM

No. 310A — Drilling kit with hammer, carrying case, chucks that take drills from 3/16" to 1-1/8", star drill and lubricant.

No. 312 — Scaling kit with hammer, 4 chisels, tool retaining clip and carrying case.

No. 311 — Scaling kit with hammer, tool retaining clip and carrying case.

FULL LINE OF ACCESSORIES

A complete line of hammer accessories includes chisels, star drills, bull point, bush hammer, gouges, dust shield, chucks and tool retaining clip. See your industrial distributor or write Stanley Electric Tools, 87D Myrtle St., New Britain, Conn. Ask for Catalog 12.

STANLEY

The Stanley Works • New Britain, Conn.



TOOLS • ELECTRIC TOOLS • HARDWARE • STEEL • STEEL STRAPPING

For More Information Circle No 339 on Inquiry Card—Page 17

(Continued from page 252)

More than 270 firms are listed both alphabetically and geographically.

Other information contained in the directory is a key list of second operation services, end products manufactured and marketed, general facilities of each screw machine products producer, and conditions of sale and manufacturing practices for screw machine products.

Single copies of the directory are available without charge from the National Screw Machine Products Association, 2860 East 130th Street, Cleveland 20, Ohio to purchasers of screw machine products.

Starting Salaries Continue to Advance

Graduates of the New York University College of Engineering in 1955 received an average of five definite job offers each, according to a report issued by Dean Thorn-dike Saville.

The average starting salary for the June graduating class was \$401 a month, an increase of eleven and one-half per cent over the figure for the Class of 1954. Aeronautical and industrial engineers were the highest paid. The average for each of these two groups was \$430 a month.

Average beginning salaries in private industry were higher than those offered by government agencies employing engineers — \$405 per month as against \$338.

"The survey indicates clearly that competition for engineering graduates is growing," said Dean Saville. "Salaries advanced again and companies continued recruiting on the campus months before the end of the school year. Because of its relatively lower salaries, civil service—local, state, and federal—continued to be at a disadvantage in attracting engineering employees."

Starting salaries have increased in each of the last eight years, with the exception of 1949. The 1955 average is 76 per cent higher than that of 1947 (\$227).

This year's survey was based on personal interviews with 122 of the 185 seniors who registered last spring with the NYU Office of Placement Services.

**FOR MORE INFORMATION
ON PRODUCTS IN
THIS ISSUE
USE INQUIRY CARD—PAGE 17**



Specify "OSBORN" ...you know it's good

THE OSBORN trademark is a guide to getting more for your money in industrial brushes. For 63 years, Osborn has been recognized as the leader in top-quality brushes.

Save time and money. Specify "OSBORN" . . . the complete line . . . and get all of your power, paint and maintenance brushes from one reliable source. Write for the free pocket-sized brush guide. *The Osborn Manufacturing Company, Dept. U-24, 5401 Hamilton Avenue, Cleveland 14, Ohio.*

Osborn Brushes

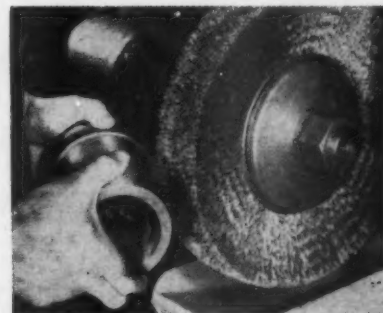


BRUSHING METHODS • POWER, PAINT AND MAINTENANCE BRUSHES
BRUSHING MACHINES • FOUNDRY MOLDING MACHINES

For More Information Circle No. 340 on Inquiry Card—Page 17



There's an *Osborn* brush for every industrial need. Specify *Osborn* for paint brushes, maintenance brushes, power brushes.



purchasing people

in the news

Smith-Scott Co., Inc., Riverside, Calif., has appointed **E. R. Skelley** as vice president in charge of purchasing. He has been with the firm for the past three years.

E. Boykin Hartley, who has been assistant to the president of the Railway Express Agency, New York, has been appointed director, purchasing. Mr. Hartley joined the

express agency in 1952 as a special representative of the president and was appointed assistant to the president in 1953. Prior to that he was assistant to the vice president, United Parcel Service, and earlier was a special assistant to the secretary of the interior at Washington.

Continental Gin Co., Birmingham, Ala., has named **Henry G. Greene** as purchasing agent. Mr. Greene

succeeds **Henry F. Davis**, who has retired after 10 years of service with the company.

Capehart-Farnsworth Co., Fort Wayne, Ind., has appointed **J. E. Hall** to purchasing agent. He succeeds **Ned S. Underhill**, who has been named director of operations. Mr. Hall has been with Capehart-Farnsworth, and its predecessor companies, for 15 years, the last five years of which he has been a buyer in the Purchasing Department.

Charles Leister, vice president in charge of purchasing for The Nestle Co., Inc., White Plains, N. Y., has been elected a director of the National Coffee Association.

The appointment of **Ralph C. Moffitt** to assistant vice president and director of purchases has been announced by **Carl A. Ilgenfritz**, vice president-purchases, United States Steel Corp., New York. With this appointment, Mr. Moffitt retains his present responsibilities and assumes those of **R. L. Van Cleve**, assistant vice president-purchases, who is retiring after 41 years with U.S. Steel. Mr. Moffitt joined USS in the Purchasing Department of the Columbia Steel Co. in San Francisco immediately after graduation from the

(Please turn to page 260)



THIRTY YEARS OF CONTINUOUS ASSOCIATION with Goodyear Tire and Rubber Co., Akron, O., were observed, recently, when **Marc W. Laibe**, (left), director of purchasing, received a symbolic service emblem from President **E. J. Thomas**. Mr. Laibe's first duties, on joining the company in 1925, were in fabric purchasing. In 1942 he became assistant to the purchasing agent for Goodyear Aircraft Corp., returning to the parent company's purchasing department in 1945. He was named division manager of purchasing in 1947, and was appointed director of purchasing in January, 1952.

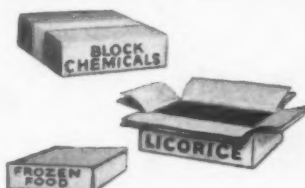
Our business is making
**UNUSUAL
 PAPER**
 for your business

For instance...**QUICK RELEASE PAPERS** such as



BACKING for pressure sensitive labels, sheets, tapes, etc.

CARTON LINERS for licorice, block chemicals, frozen foods, etc.



INTERLEAVING for plastic, rubber and petroleum by-products

These are just a few examples of Riegel's ability to tailor-make papers for nearly every ordinary or extraordinary industrial need.

More than 600 grades now made . . . many with technical properties that would amaze you. Tell us what you want paper to do for you . . . Write to Riegel Paper Corporation, 260 Madison Ave., New York 16, N. Y.

Riegel

tailor-made

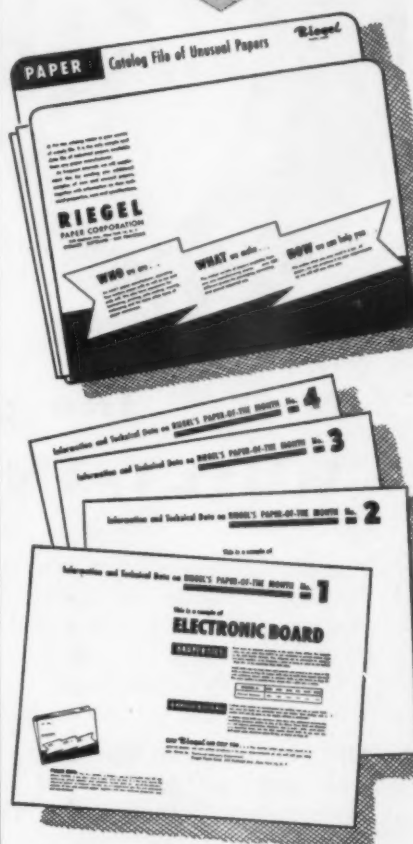
INDUSTRIAL PAPERS

papermaking, impregnating, printing, poly-coating, waxing, laminating



FREE sample and data file of **UNUSUAL** papers!

FREE TO PURCHASING MEN
 ...CATALOG AND
 SAMPLE FILE OF
**UNUSUAL
 INDUSTRIAL
 PAPERS**



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BUILT-IN SAFETY!

There's safety with the new USG Solfrunt Gauge . . . behind the face is a solid metal wall! In the event of a Bourdon tube rupture, pressure is released through the large rubber blowout back. The case is of aluminum.

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ARC-LOC MOVEMENT—Rugged beyond compare . . . broad generated gear faces, deep stainless steel bushings. Calibration adjustments from rear by merely removing blowout back.

SEGMENT—Stainless steel, with nylon-faced gear section. Nylon-to-metal bond stabilizes the nylon against expansion and contraction . . . maintains accurate pitch diameter . . . assures proper mesh with stainless steel pinion under severe temperature and moisture conditions.

LEGEND ON DIAL—gives complete description of socket, Bourdon tube, and movement material for ready identification.

MICROMETER ADJUSTABLE SELF-LOCKING POINTER—permits accurate repositioning of pointer.

Solfrunt Gauges available in 4½", 6" and 8½" sizes. For complete information on case styles, materials of construction and connections, write for Publication 1819.

USG
UNITED STATES GAUGE

Gauge Headquarters

FOR OVER 50 YEARS

United States Gauge, Division of American Machine & Metals, Inc., 112 Clymer Avenue, Sellersville, Pa.

For More Information Circle No. 342 on Inquiry Card—Page 17

purchasing
people

(Continued from page 258)

School of Business Administration, University of California. In 1943, he was transferred to Provo, Utah, as purchasing agent—Utah operations. Two years later he went to Pittsburgh to handle the purchasing for Columbia Steel Company's expansion and reconversion programs in the far west, and in 1947 he was appointed assistant vice president—purchases of U.S. Steel Corp of Delaware. Named director of purchases of United States Steel Company in 1951, he became director



R. C. Moffit

of purchases of United States Steel Corporation two years later. Mr. Moffit is a director of the Purchasing Agents Association of Pittsburgh and chairman of the development committee on visual education of the National Association of Purchasing Agents. At the same time, it was announced that **William W. Crawford** has been appointed assistant director of purchases for USS. Also, **Everett G. Barrett** has been named purchasing agent, electrical and mechanical equipment. Mr. Crawford joined the corporation's Homestead District works in 1946 as a practice apprentice in the metallurgical department. He later became a buyer in the purchasing department's Pittsburgh office. Advancing through various buyer positions, he was named purchasing agent for electrical and mechanical equipment in 1953, his position until his present appointment.

A Metallurgist?

WHO? ME?



Well, maybe not exactly, but if you buy steel it's important that you, as a Purchasing Agent, know many details for which your technical contemporaries usually get the credit. Your knowing certain fundamentals can save your company many dollars and shorten delivery time by weeks.

As a case in point, take tubing size. A recent heat exchanger job called for three pieces of 18-8 Ti (TP321) tubing, each with different diameters and lengths. They were odd sizes, not available in stock. Delivery time would have been eight to ten weeks, and the customer would have had to buy minimum

mill quantities, or four times more material than he wanted.

This smart customer (1) called in helpful Mr. Tubes, (2) converted to available pipe sizes while maintaining the original working pressures, (3) purchased a more expensive grade and still saved money, (4) cut delivery to less than four weeks, (5) stayed within his original cost estimate.

You don't have to be a metallurgist to realize that a basic understanding of tubing—plus a timely assist from Mr. Tubes, your link to B&W—can often save both time and money.

THE BABCOCK & WILCOX COMPANY TUBULAR PRODUCTS DIVISION

General Offices: Beaver Falls, Pennsylvania
Plants: Beaver Falls, Pa.; Alliance, Ohio; Milwaukee, Wis.
Seamless and Welded Tubing and Pipe, Seamless Welding Fittings
and Flanges—in Carbon, Alloy and Stainless Steels



TA-5069G

DECEMBER, 1955

For More Information Circle No. 343 on Inquiry Card—Page 17

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RITCO Forgings, in steel or non-ferrous metals, are clean, bright, accurate, and strong. Made in weights from ¼ lb. to 15 lbs., they have maximum strength for their weight. Parts are smooth, free of flash, and conform to your blueprints. Use RITCO Drop Forgings: They're the economical, right answer to your design problems. Send blueprints and specifications for free estimates.

We offer complete machining and grinding facilities for finishing forgings.

We also make special fasteners and finished bolts with regular or heavy heads. Exclusive New England representatives for Cleveland Cap Screw Company.

RHODE ISLAND TOOL CO.

Since 1834

148 West River Street
Providence 1, R. I.



purchasing people

Sheldon V. Clarke has been appointed manager of the General Purchasing Department, Union Carbide and Carbon Corp., New York. He succeeds **H. V. Huffard**, who has retired after 40 years of service with the corporation. Mr. Clarke joined



S. V. Clarke

Union Carbide in 1920. He served as construction engineer in the Construction and Design Department, Linde Air Products Co., and later held the same post in Carbide and Carbon Chemicals Co. He left Union Carbide in 1929 to become a vice president of the Bradstreet Co. He rejoined Union Carbide in 1934, as purchasing agent. In 1946, he was made assistant manager of purchases.



S. Reando



L. Bostwick

Steve Reando, formerly purchasing agent of Rockwood Sprinkler Co., Worcester, Mass., has been made assistant to the president. He will be in charge of all factory personnel. He is succeeded as purchasing agent by **Lloyd Bostwick**, who had been assistant purchasing agent for the past five years under Mr. Reando.



TOUGH JOBS NEED TOUGH STEELS

These precision parts, made for textile knitting machines and refrigerator valves, take a terrific beating. That's why the manufacturers' requirements are so high. Strength, precision, and flatness are musts. And that's why Uddeholm Swedish cold-rolled strip was used to make them.

Furthermore, on large scale stamping runs, like those for making the parts above, it is very important that the strip be uniform in chemical composition, physical properties, flatness, thickness, and finish. And that's another reason Uddeholm filled the bill.

If you want uniformly high grade, cold-rolled strip—wide or narrow, thick or thin, hardened or annealed, finished blue or straw or bright—just let us know.

Stocks of clock spring steel, bandsaw, flapper valve, thickness gauge, razor, and many other types, are carried in New York, Cleveland, and Los Angeles.

WRITE FOR SUBSCRIPTION TO UDDEHOLM'S MONTHLY STOCK LIST OF STRIP STEELS.

UDDEHOLM, 155 East 44th St., New York 17, N. Y.

Please send me monthly strip steels stock list.

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COMPANY _____

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CITY _____ ZONE _____ STATE _____



UDDEHOLM COMPANY OF AMERICA, INC.

Tool and Die Steels
Specialty Strip Steels

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Warehouses

New York: 155 East 44th Street, Murray Hill 7-4575
Cleveland: 4540 East 71st Street, Diamond 1-1110
Los Angeles: 5037 Telegraph Road, Angelus 2-5121

District Representatives

CHICAGO: Frank J. Mackin, Leroy E. Marshall, 55 East Washington, State 2-1649

DETROIT: Warren H. Nugent, 17304 Lahser Road, Kenwood 5-6340

In Canada: Uddeholm (Canada) Ltd.

35 Coronet Road, Toronto, Belmont 3-3235

For More Information Circle No. 345 on Inquiry Card—Page 17

NEW WILLIAMS

LOCKING ADJUSTABLE WRENCH

THE ONLY REAL ADJUSTABLE
WRENCH IMPROVEMENT
IN OVER 40 YEARS!

PUSH DOWN TO UNLOCK

PUSH UP TO LOCK

AVAILABLE
AT NO EXTRA
COST

WITH FEATURES

YOU HAVE ALWAYS WANTED IN AN ADJUSTABLE WRENCH

- No Obstructions
- Structurally Sound
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- Drop-Forged from Selected Alloy Steel and Chrome Plated
- Rapid Adjustment
- One Hand Operation
- No Fumbling

AVAILABLE
IN FOUR MOST
POPULAR SIZES

No.	Size	Capacity	List Price
6L	6"	$\frac{3}{4}$ "	\$2.06
8L	8"	$1\frac{1}{8}$ "	\$2.45
10L	10"	$1\frac{1}{2}$ "	\$3.10
12L	12"	$1\frac{3}{8}$ "	\$4.50

WILLIAMS
INDUSTRIAL TOOLS
"The Broadest Line of Its Kind"

you'll get
SERVICE ON
THE DOUBLE
from your
DISTRIBUTOR'S
SALESMAN.
He'll give
you quickest
delivery at
lowest cost!

J. H. WILLIAMS & CO., 402 Vulcan Street, Buffalo 7, N. Y.

For More Information Circle No. 346 on Inquiry Card—Page 17

purchasing people

The appointments of **J. J. Plumb** as purchasing agent of the Machine and Tool Division, and **Milton C. Ton** as purchasing agent of the



J. J. Plumb



M. C. Ton

Cone-Drive Division, have been announced by Michigan Tool Co., Detroit. Mr. Plumb will headquarter in Detroit, and Mr. Ton in Traverse City, Mich. Mr. Plumb joined the firm in 1940 as a buyer, becoming assistant purchasing agent in 1950. Mr. Ton has been a buyer with the firm for 14 years. Previously he was purchasing agent for the Wittemann Co., and a buyer for Pierce-Arrow Motor Co.

N. Martin Steffens has been appointed director of materials for Geuder, Paeschke & Frey Co., Milwaukee. A veteran of 38 years of



N. M. Steffens

service, he has held many responsible manufacturing and purchasing administration jobs. He originally started as a clerk in G. P. & F.'s purchasing department. In his new capacity, Mr. Steffens will be in charge of purchasing, production planning and scheduling, inventory control, traffic and inspection functions at the firm's Milwaukee, Sheboygan, and Lebanon (Ind.) plants.

PURCHASING

ITEMS LIKE THESE AVAILABLE AT

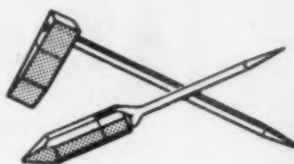
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WAREHOUSES!



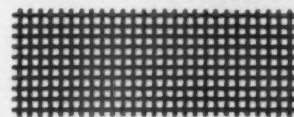
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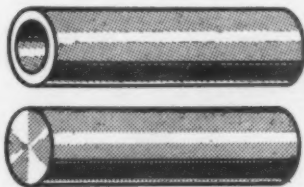
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COTTER PINS



SOLDERING COPPERS



INDUSTRIAL WIRE CLOTH



SOLID or CORED BEARING BRONZE



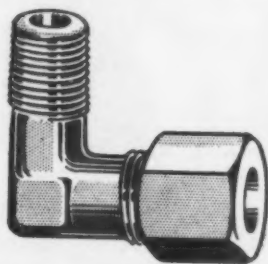
BRASS or BRONZE WOOD
and MACHINE SCREWS



BRASS ESCUTCHEON PINS



BRASS STRAINER CLOTH



INDUSTRIAL and
AUTOMOTIVE FITTINGS



BRASS or BRONZE
BOLTS and NUTS

CALL US FOR ANYTHING from Bearing Bronze Bars to Brass or Bronze Bolts...or other fastenings like those shown here for maintenance, repair, operating or production. Twenty-five Chase warehouses are located in major industrial centers from coast to coast. Phone the one nearest you. We can usually fill your orders from stock.

NEW! Chase's informative rod and wire movie: "IN THE CHIPS." Arrange for a free loan of this film by contacting the Chase warehouse or sales office near you. Write on your company letterhead, today!

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Atlanta Baltimore Boston Charlotte Chicago Cincinnati Cleveland Dallas Denver Detroit Grand Rapids† Houston Indianapolis Kansas City, Mo. Los Angeles Milwaukee Minneapolis Newark New Orleans New York Philadelphia Pittsburgh Providence Rochester† St. Louis San Francisco Seattle Waterbury († sales office only)

For More Information Circle No. 347 on Inquiry Card—Page 17

DECEMBER, 1955

265

NEW

nylon, heavy-duty industrial flashlights



**2-CELL
N22**

- Resistant to
- BREAKAGE
 - CHEMICALS
 - TEMPERATURE



**NEW Industrial
flashlight batteries**

GUARANTEED against corrosion damage to flashlights. They're fresh when you get them, stay fresh in your stockroom—they're not dated! Yet these superior batteries cost no more.

New "WORKMAN" flashlights are designed with every "wanted" feature. The lacquered aluminized reflector provides a perfect spot. There's a replaceable switch to insure effective operation year after year. The removable end cap has a spare lamp holder and a ring hanger molded of durable NYLON. No metal parts exposed. And the completely new design slips easily into the pocket. They're practically indestructible—stand up under rough, tough usage. Specify these new Ray-O-Vac NYLON flashlights—they have no equal!

Need special batteries? Radio, telephone, lantern, ignition, shot firing, emergency lighting, and other types of batteries are made by Ray-O-Vac. Also *custom designed* batteries specifically for your requirements... all with Ray-O-Vac's dependability and extra power. Check with your nearby representative or write us.

**RAY-O-VAC COMPANY
MADISON 10, WISCONSIN**



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1388 Madison Avenue, Memphis 4, Tennessee • 461 Market Street, San Francisco 5, California • 1775 Broadway, New York 19, New York
Ray-O-Vac Canada, Ltd., Winnipeg

For More Information Circle No. 348 on Inquiry Card—Page 17

purchasing
people

Herbert A. Lubke has been named purchasing agent of Solar Aircraft Co., Des Moines, Iowa. He succeeds



H. A. Lubke



R. Bartel

Earl D. Needham, who has been appointed manager of the Material Division. **Richard Bartel** has been named assistant purchasing agent.

Automatic Transportation Co., Chicago, has named **Charles S. Beshore** as director of purchases. He



C. S. Beshore

succeeds Carle J. Blakeslee, who has retired. Mr. Beshore joined the firm in 1951 as director of systems and procedures.

If the copy of PURCHASING received in your department is a busy one, it would pay you to have additional copies available for your purchasing staff. Copies, easily accessible when needed, will save time and money. The ideas alone derived from PURCHASING Magazine will more than pay the small investment of \$4.00 for a yearly subscription.

PURCHASING

TAYLOR

Laminated Plastics
Vulcanized Fibre

Shop Talk

TAYLOR FIBRE CO.

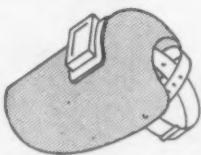
Plants in Norristown, Pa. and La Verne, Calif.

PHENOL—MELAMINE—SILICONE—EPOXY LAMINATES • COMBINATION LAMINATES • VULCANIZED FIBRE • POLYESTER GLASS ROD

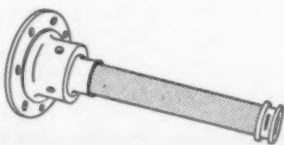
Tips for designers



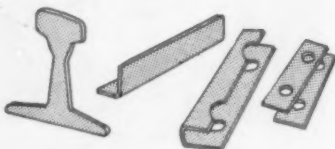
Sealing strips for crew doors of 4-engine commercial transport plane are made from Taylor canvas base phenol laminate . . . chosen for its flexibility and long-wearing qualities.



Welders' helmets are fabricated from tough, durable Taylor Vulcanized Fibre . . . readily formed to many desired contours.



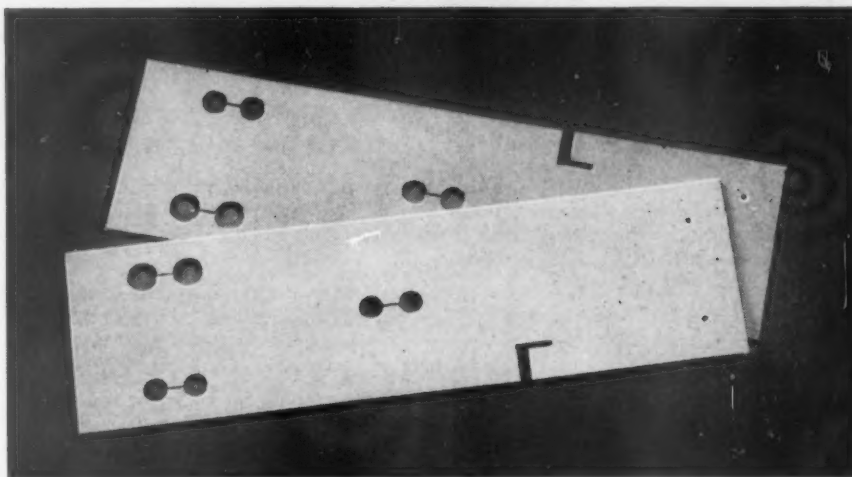
Aircraft fuel gage tank unit uses a tube of Taylor Epoxy Glass Base Laminate . . . an unusual material noted for excellent corrosion resistance and electrical insulation over a wide humidity range.



Railroad track-joint insulation, a specially developed grade of Taylor Vulcanized Fibre, withstands heavy impacts and mechanical stress of high-speed trains.

TAYLOR FABRICATING FACILITIES

Your production can be simplified...schedules safeguarded... inventory headaches cured . . . and overall costs reduced by having Taylor fabricate finished parts to your specifications. Efficient, modern facilities are ready to serve you. Get in touch with Taylor about your requirements.



Support for antenna lead in is punched from Taylor Insulation . . . a lightweight, flexible material ideal for mechanical applications and rough usage.

New Products, too, Use Tough, Flexible Taylor Insulation

When you're designing new products or modernizing old ones, take advantage of the unique characteristics . . . both in performance and economy . . . of Taylor Insulation. Also called "fish paper," this versatile material has long been a favorite of designers. It offers properties that have not been duplicated by more recently developed materials . . . many of which Taylor also makes.

Most outstanding properties of Taylor Insulation are its extreme toughness, excellent bending qualities, high dielectric strength and arc resistance. Its durable surface withstands abrasion. It is an ideal insulating material for slot wedges in electric motors, for field coils, for transformers, and for arc shields.

Taylor Insulation is not limited to insulation work. Its strength, tough-

ness and resistance to many chemicals qualify it for gaskets, washers, metal box liners and a wide variety of mechanical products.

To insure uniformity of its useful characteristics, Taylor Insulation's base is a high grade rag paper manufactured in Taylor's own paper mill. Taylor Insulation comes in sheets, strips, rolls and coils for high speed production equipment . . . sheets approximately 56" x 90", and rolls up to 56" wide.

Write to Taylor for a copy of its general catalog with complete technical data on this and other grades of Taylor vulcanized fibre and laminated plastics. And have a Taylor engineer consult with you for specific recommendations on your particular materials application.

Looking For
LOW COST
Stainless Steel?



... then you want
MicroRold® 430!

MicroRold Type 430 is a straight chromium-stainless with a nominal composition of 17% chromium. Though it is less resistant to corrosion, it retains all of the other desirable qualities of stainless and has proven very satisfactory in a wide range of mild corrosion applications.

MicroRold 430 is the least expensive of all stainless types because it does not contain nickel. This results in a 7¼¢ per pound difference in base price between Type 430 and Type 302, the most popular higher grade stainless. A saving of \$155 per ton is possible and is of merit to cost-conscious fabricators.

Considering the price advantage, with no sacrifice in quality when applied properly, you will find MicroRold 430 a worthwhile material for your product.

Your steel distributor can help you get the most for your stainless steel dollar. He will gladly tell you the MicroRold Story.

Washington Steel Corporation
WASHINGTON, PENNSYLVANIA



For More Information Circle No. 350 on Inquiry Card—Page 17

Save on Your
**INDUSTRIAL
TRACK**



**FULLY
GUARANTEED**

**FOSTER
QUALITY
RELAYING
RAILS**

Lower installation and maintenance costs—handle more cars better. Foster nationwide warehouses also stock every New Rail Section 12# through 175#, Switch Material and Accessories to meet your specific job requirements.

SEND FOR CATALOGS P-11

RAILS - TRACK EQUIPMENT - PIPE - PILING
LB FOSTER co.
PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4
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For More Information Circle No. 351
on Inquiry Card—Page 17

**DESK-SIZE INDUSTRIAL BUYING
GUIDE**
... cuts source-finding time in half



Weights 10 lbs., contains 1,400 pages, yet this desk-size buying guide is surprisingly complete, due to elimination of non-industrial items, and use of ingenious indexing system.

Contains buyers' guide, trade name index, handy mechanical data section, special chemical section, and a separate address section.

Conover-Mast Purchasing Directory

205 E. 42nd St., New York 17

**purchasing
people**

Consolidated Chemical Industries Inc., New York, has named **A. L. Sweitzer** purchasing agent of the southern division in Houston, Texas.



A. L. Sweitzer

He has been with Consolidated since 1947, as a buyer and assistant purchasing agent. He is a member of the National Association of Purchasing Agents.



R. B. Chase

Ebasco Services Inc., New York, has named **R. B. Chase** as general purchasing agent, and **W. T. Hamilton** as purchasing agent. Mr. Chase has been with Ebasco since 1923, when he joined the company as a field material man checking construction materials and equipment. Since then he has progressed to field purchasing agent, assistant purchasing agent in New York, and purchasing agent. As general pur-

(Please turn to page 270)

For More Information Circle No. 352
on Inquiry Card—Page 17→

PURCHASING



NOTE all diameters and lengths are identical. Photo twice actual size.

How do you want your 10-watt resistors?

Here are a few of the variations you can get in basic design, terminals and mountings on a standard 10-watt Vitrohm resistor.

It's this tremendous variety (we make a wider range of resistors than anybody else) that enables Vitrohm resistors to do so many jobs so well — and save you installation costs at the same time.

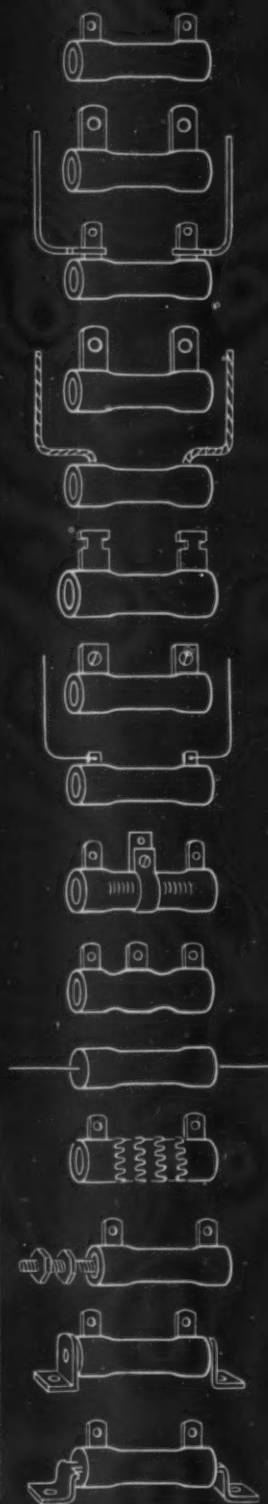
Add to this Ward Leonard's performance standards — insured by the 19 separate

inspection tests we run on every single resistor we make — and you see why you get more resistor for your money in a Vitrohm.

Prompt delivery, too, by the way.

Our engineers will be glad to show you which Vitrohm design best meets your specific needs. A line or call to Ward Leonard Electric Company, 50 South Street, Mount Vernon, N.Y. is all it takes.

5.4



**WARD LEONARD
ELECTRIC COMPANY**
MOUNT VERNON, NEW YORK



Ward Leonard Electric Company Since 1899

SCREWDRIVING

on production
or
maintenance
work

for manual
or
power tool
operation

you can do it better with APEX

*APEX has these
tools to help you:*

*if you drive
these types of screws:*

	PHILLIPS	FREARSON (Reed & Prince)	SLOTTED	CLUTCH HEAD	SOCKET HEAD
POWER BITS	X	X	X	X	X
HAND DRIVERS	X	X		X	
FEMALE SQUARE DRIVE BITS	X	X		X	
HAND BRACE BITS	X	X		X	
OFFSET DRIVERS	X	X			
FINDER SLEEVE ASSEMBLIES			X		
INSERT BITS AND BIT HOLDERS	X	X	X	X	X
COMBINATION HAND DRIVERS	X	X	X	X	X
HAND BRACE BIT HOLDERS	X	X	X	X	X
FEMALE SQUARE DRIVE BIT HOLDERS	X	X	X	X	X

There are Apex screwdriving tools to fit all well-known makes of air, electric or spiral drivers . . . standard and magnetic bit holders . . . shanks and reversible sockets for use on hex head sheet metal screws. Complete information will be found in our Catalog 21—the authority on screwdriving; write, on your company letterhead please, for your copy.

APEX

screwdriving tools

THE APEX MACHINE & TOOL CO.
1034 Patterson Blvd. • Dayton 2, Ohio

For More Information Circle No. 353 on Inquiry Card—Page 17

purchasing
people

(Continued from page 268)

chasing agent, he will be in charge of all purchasing, expediting, factory inspection and transportation of materials and equipment for construction, operation and maintenance purchased for clients in the U.S. and abroad. Mr. Hamilton joined Ebasco as a factory inspector in 1937, and in 1946 was made chief inspector of the Purchasing, Traffic and Inspection Department. He was transferred to overseas operations in 1950 and 1951, serving as purchasing agent in Greece for the Greek Electrification Program.



G. L. Petrie

G. L. Petrie has been named purchasing agent by R. E. Dietz Co., Syracuse. He succeeds **Charles F. Marchant** who is retiring as of January 1st. Mr. Petrie has been with Dietz since 1935. Serving as assistant purchasing agent will be **Edward C. Braunsdorf**, a Dietz employee since 1918.

The advancement of two men to more responsible positions in the purchasing department has been announced by The Lowe Brothers Co., Dayton, paint and varnish makers. Milton Wright, assistant purchasing agent, has been named purchasing agent. He succeeds **Walter T. Loges**, who retired after 43 years of service with the company. Mr. Wright joined Lowe Brothers in 1919 and has served 33

(Please turn to page 272)

PURCHASING



NORMA-HOFFMANN BALL BEARINGS

Rugged—thoroughly dependable for carrying thrust and radial loads.

NORMA-HOFFMANN ROLLER BEARINGS

Short, cylindrical roller design... heavy-duty bronze retainer... lowest possible co-efficient of friction under heavy load.

Norma-Hoffmann heavy-duty Bearings improve the design and performance of products wherever they are used. They are dependable, give friction-free smoothness and quietness of operation. Available in a wide range of sizes for every load, speed and duty. Write for catalog and engineering assistance.

NORMA-HOFFMANN
Precision BEARINGS
BALL • ROLLER • THRUST

NORMA-HOFFMANN BEARINGS CORPORATION
STAMFORD, CONNECTICUT—Founded in 1911

For More Information Circle No. 168 on Inquiry Card—Page 17

Any way you figure it
NORMA-HOFFMANN
PRECISION
BEARINGS
are the Right Answer



When it comes to SOLID CARBIDE PRATT & WHITNEY offers YOU the RIGHT TOOL... for Your Job



Lasting up to 200 times longer than high speed steel and able to lower production costs tremendously, carbide *IS* the tool of today and tomorrow!

But — you *can not* simply remove the high speed tools and replace with carbide. Additional power is required to drive carbide efficiently; speed, feed and chip load must be carefully correlated with type and depth of cut, finish required and many other factors. The correct grade of carbide for *each* application must be determined.

Now — traditional Pratt & Whitney cutting tool know-how and experience, supplemented by a 10-year program of special research and development in carbides, bring you this assurance: the *RIGHT* carbide tools for your specific jobs. Send us your work blueprints and acquaint us with type of machines involved. We will be glad to submit our job recommendations.



PRATT & WHITNEY COMPANY

INCORPORATED

19 Charter Oak Boulevard, West Hartford 1, Connecticut
Direct Factory Representatives in Principal Cities

MACHINE TOOLS • GAGES • CUTTING TOOLS

purchasing
people

(Continued from page 270)

years in the purchasing department. G. Gilbert Sipe has been advanced to the newly created post of mana-



M. Wright



G. G. Sipe

ger of raw materials. He will procure and maintain raw material stocks for factory production. Mr. Sipe joined the firm in 1939, serving in several supervisory capacities prior to his present assignment.



W. J. Pierre

William J. Pierre has joined Kaydon Engineering Corp., Muskegon, Mich., as director of purchases. Mr. Pierre had been with Serval, Inc., where he supervised purchasing functions as administrative assistant to the vice president in charge of purchasing. He is a member of the National Association of Purchasing Agents.

**FOR MORE INFORMATION
ON PRODUCTS IN THIS ISSUE
PLEASE USE
INQUIRY CARD—PAGE 17**

For More Information Circle No. 354
← on Inquiry Card—Page 17



He told us he was glad to find **A BRASS MILL WITHOUT "Brass"**

He's the head of a good-sized metal fabricating outfit, and he wears the same size hat he always did. He's a shirt-sleeved working man, just like us, so when he called with his order, we spoke the same language . . . the direct, debunked language that leads to *action, right now*.

He found that the first man he talked to, here, had *both* mill and sales experience, and that he didn't ever have to backtrack over details with anyone else. When he asked if this man was one of "The Brass", we told him we didn't have any "Brass" of that kind . . . just a well-coordinated group of experienced, responsible people with the know-how and authority to see an order through *fast and right*.

We make many good friends this way . . . among people who want their Brass strip, rod and wire exactly how and when they want it! If you talk that language, too, then call Bristol, Connecticut, Ludlow 2-3161 . . . and you'll see what we mean by "*Bristol-Fashion*".

THE BRISTOL BRASS CORPORATION

has been making Brass strip, rod and wire here in Bristol, Connecticut since 1850, and has offices and warehouses in Albany, Boston, Buffalo, Chicago, Cleveland, Detroit, Milwaukee, New York, Philadelphia, Providence, Rochester, Syracuse. The Bristol Brass Corporation of California, 1217 East 6th St., Los Angeles 21. The Bristol Brass Corporation of Ohio, 1607 Broadway, Dayton.

"Bristol-Fashion" means **Brass at its Best**

For More Information Circle No. 355 on Inquiry Card—Page 17

industry

developments

The Union Metal Mfg. Co., Canton, O., has announced an expansion program involving buildings and equipment that represents an expenditure of more than \$1,000,000. Consolidated in the program is a new building adding 51,400 sq. ft. of manufacturing floor space, and new machinery and equipment for the manufacture of steel tubes. The machinery will provide a 100% increase of steel tube manufacturing capacity.

Construction of a modern, one-story building to house three of its wholly-owned California subsidiaries is under way, according to an announcement from **International Resistance Co., Philadelphia**. The plant will be occupied by the Hycor Co., IRCal Industries, and Emec, Inc. Hycor produces precision wave filters, variable attenuators, toroid coils, and audio components. IRCal manufactures encapsulated wire wound precisions. Emeco makes

magnetic clutches. The new building will be located at Sylmar, Calif.

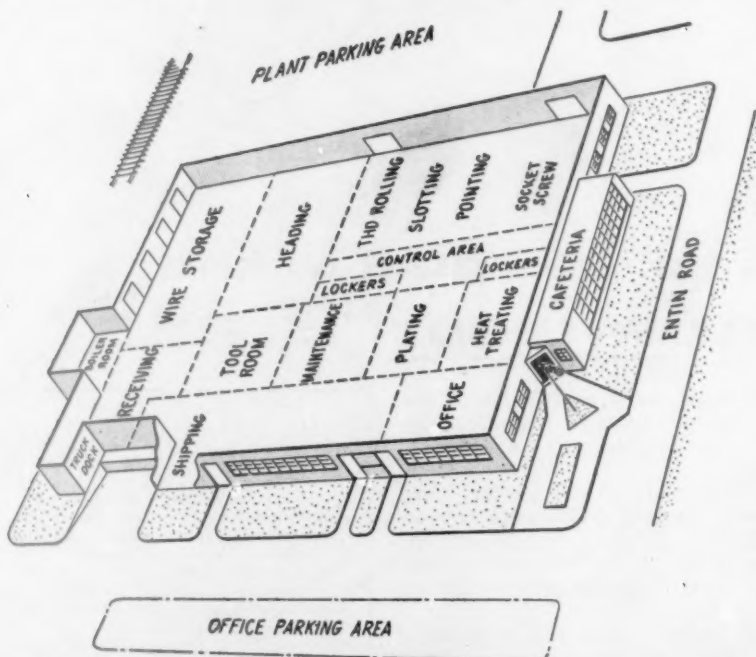
Kennecott Copper Corp., New York, has obtained a 52% interest in Tin and Associated Minerals, Ltd., Nigeria, Africa. The Nigerian firm produces approximately 600,000 lbs. of columbite annually.

In line with its expansion program, and to strengthen its competitive position by establishing production facilities to serve West Coast customers, **Federal Telephone and Radio Co., Clifton, N. J.**, a division of International Telephone and Telegraph Corp., is building a plant in Los Angeles.

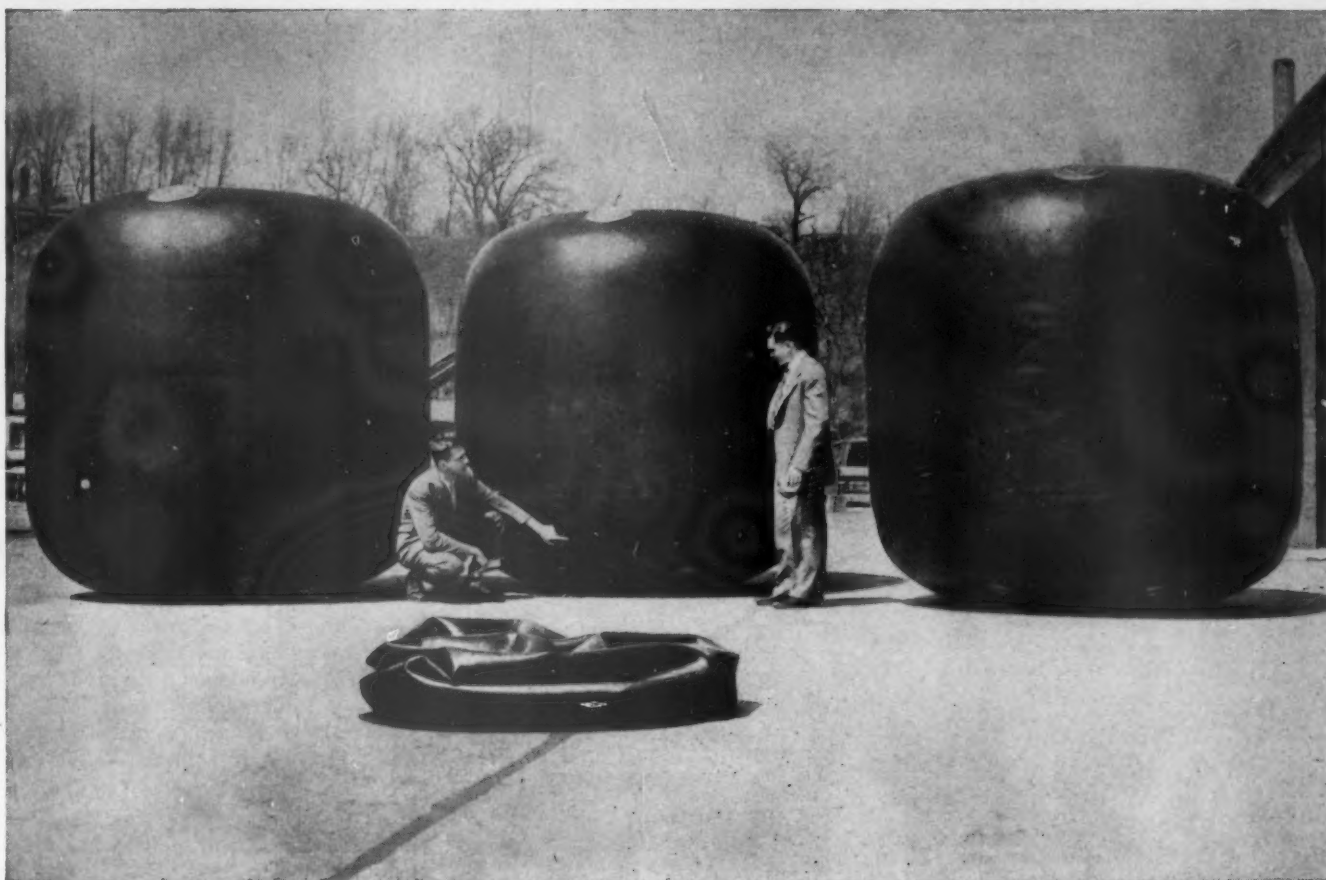
The Budd Co., Inc., Philadelphia, has acquired a new wholly-owned subsidiary, Continental - Diamond Fibre Division.

A new \$1,500,000 carbon dioxide plant in Oakland, Calif., has been put in operation by **The Liquid Carbonic Corp., Chicago**.

The Westinghouse Electric Corp., Pittsburgh, is building an addition to its standard control division plant in Beaver, Pa. It will add about 140,000 sq. ft. of floor space, an increase of 25% in available area. While mainly designed for warehouse and shipping activities, the addition will also provide manufacturing space if needed. Construction will begin next spring and should be completed by the fall of 1956.



A NEW "CENTER FOR FASTENING PROGRESS" is now under construction by Parker-Kalon at Clifton, N.J. Innovations in production technique and research are expected to make the structure unlike any other in the fastener industry, according to the company. The new plant is described as "dedicated to the growing needs of all industries for greater economy and efficiency in fastening techniques." The one-story building has 267,000 square feet. The plant will maintain a fairly high degree of automation with plans now under study for more complete automation in the future. It is constructed with knock-out walls for expansion up to 450,000 feet.



Neoprene protects collapsible shipping "drums" against chemicals, abrasion, weathering

NEWEST METHOD for shipping powdery or granular materials is flexible "drums" which pack flat for return shipment. They consist of multiple layers of rubber and fabric, reinforced with cables. And for versatility and extra-long service, the drums have an inner lining and outer covering of neoprene—Du Pont's chemical rubber.

These sturdy drums offer reduced handling costs to shippers, inexpensive bulk shipment and storage to customers. And neoprene adds still other advantages. The durable neoprene lining resists chemicals

and oils . . . permits safe shipment of a wide range of chemically active materials. And the rugged neoprene outer coating stands up to weathering, sunlight and abrasion encountered in transit.

In this new application, as in industrial rubber goods of all types, neoprene extends service life, cuts maintenance costs. Give your supplier a call. He'll be glad to show you the neoprene products he sells.

SPECIFY NEOPRENE IN THESE PRODUCTS:



MAIL THIS COUPON TODAY

NEOPRENE

The Rubber Made by Du Pont
Since 1932



BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

FREE! THE NEOPRENE NOTEBOOK—Every issue describes new products, unusual applications of neoprene . . . shows how neoprene cuts maintenance costs. Clip and mail this coupon to get on the mailing list. E. I. du Pont de Nemours & Co. (Inc.), Elastomers Division P-12, Wilmington 98, Del.

Name

Position

Firm

Address

City State



YOU'LL LIKE THIS

*fast, accurate,
easily handled*
**MILLERS FALLS
PORTABLE SHEAR**



Its light weight (only 8 lbs.), ease of control and excellent visibility at point of cut permit speed and accuracy on either inside or outside work, on straight, curved or irregular lines.



CUTS 16 GAUGE STEEL

Precision-ground, heat-treated alloy steel blades of this rugged high-production tool will give you smooth clean cuts in steel and galvanized sheet up to 16 gauge (.060"), and up to 50% greater thickness in aluminum, copper and other non-ferrous metals.

Adjustments for depth of cut and clearance are extremely simple to make, and blades are easily removed for sharpening or replacement: the two hex keys needed are conveniently located right in the tool handle, which is shaped for most convenient holding in any preferred position.

GET THE DETAILS. Send now for free literature on the Millers Falls No. 16 Shear, and the complete line of Millers Falls high-performance, advanced-design electric tools. Or we'll be glad to arrange for a demonstration in your own shop on request.

MILLERS FALLS COMPANY

Dept. PR-11

Greenfield, Mass.

For More Information Circle No. 357 on Inquiry Card—Page 17



Finest Power Tools Made

industry

Riegel Paper Corp., New York, has eliminated the company's subsidiaries, Riegel Carolina Corp. and Riegel Woodlands Corp. The business of the subsidiaries will be continued as an operating division of Riegel Paper Corp.

Kaiser Steel Corp., Oakland, Calif., is exercising its option for immediate purchase of a vast, undeveloped limestone deposit in southern California. Known as the Cushenbury deposit, it will make Kaiser Steel self-sufficient in the three basic raw materials—iron ore, coking coal, and limestone.

Steel is going up for the new plant of the **Etna Machine Co., Toledo,** manufacturers of heavy duty tube mills, tube cut-off machines, swaging machines, and allied equipment. The new plant, costing nearly \$300,000, will provide 40,000 sq. ft. of floor space.

The Robert Gair Co., Inc., New York, will begin construction early next year on a 92,500 sq. ft. shipping container plant in Cleveland to house its Ohio Corrugated Box Division. It is scheduled to be ready for occupancy in November, 1956.

Ebasco Services Inc., New York, has added a nuclear engineering division to its engineering department.

Owens-Corning Fiberglas Corp., Toledo, has announced plans to build a plant in New Jersey to be devoted chiefly to manufacture of Fiberglas insulations, noise control products and other building materials. It will be located near Camden and is scheduled for completion by the fall of 1956.

A multi-million dollar petrochemical plant is being built at Louisville, Ky., by **Stauffer Chemical Co., New York.** It will produce carbon tetrachloride, chloroform, methylene chloride and anhydrous hydrogen chloride. Present scheduling calls for completion during 1957.

For More Information Circle No. 358 on Inquiry Card—Page 17→

PURCHASING

Bremen Bearings, Inc., uses SUPERLA Soluble Oil to give bearings the clean, cool treatment

PRECISION NEEDLE BEARINGS are the exclusive product of Bremen Bearings, Inc., Bremen, Indiana. SUPERLA Soluble Oil is used exclusively in all eight of the Company's Cincinnati Centerless Grinders. Plant management experimented with various soluble oils before settling on SUPERLA. They found none could compare with SUPERLA Soluble Oil with respect to wheel loading, stability and tool machine cleanliness.

Plus these benefits, Bremen found

SUPERLA mixed readily with water regardless of degree of hardness. The Company found, too, that they got longer tool life and maximum rust protection of work and machines.

You will have the same experience with SUPERLA Soluble Oil. Find out. Inquire of your Standard Oil lubrication specialist. In the Midwest call your nearby Standard Oil office. Or write Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Ill.

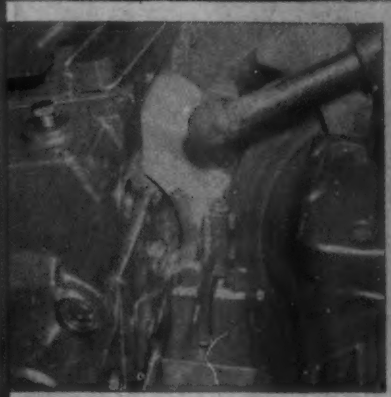
Franklin D. Clark (right), Sales Manager, Bremen Bearings, Inc., and Standard Oil lubrication specialist E. A. Hunt, inspect needle bearing. Gene Hunt is well qualified to assist industrial plants on lubrication problems. In addition to his three years' experience in industrial lubrication sales work, Gene has an M. E. degree from Purdue and has completed the Standard Oil Sales Engineering School. Customers find this experience and training pay off for them.



STANDARD OIL COMPANY (Indiana)



Bearings being ejected from Cincinnati Centerless Grinder at Bremen Bearings, Inc. The Company manufactures needle bearings to customers' specifications in sizes from 1/16 to 1/2 inch with tolerances of .0001" and finishes to 3 micro-inches. SUPERLA Soluble Oil is used on all of the Company's grinders.





OFTEN:

TWO HEADS ARE BETTER THAN ONE



Sometimes a double head is the only solution to your part or fastener problem. This steel spacer is an excellent example of a single double-headed part that has replaced a more expensive 3 piece part. Not only was the spacer itself much less expensive but actual assembly cost was cut almost 30%. HASSALL double-heading really paid off on this one.

Double-heading is only one example of the almost limitless possibilities Hassall cold-heading offers you. If you have a fastener problem just send us samples or specifications for a quotation.

WRITE FOR CATALOG with it we will send you our popular decimal equivalent wall chart. John Hassall, Inc., Box 2268, Westbury, L. I., N. Y.

HASSALL

SINCE 1850



NAILS, RIVETS, SCREWS
AND OTHER COLD HEADED
FASTENERS AND SPECIALTIES

For More Information Circle No. 359 on Inquiry Card—Page 17

industry

Reynolds International, Inc., Richmond, Va., has completed negotiations for an aluminum sheet and foil plant at Cap-de-la-Madeleine in Quebec, Canada. The plant, formerly operated by Aluminum Rolling Mills, Ltd., will produce aluminum sheet, coils, circles for pots and pans, foil, roofing, insulation and converted foil for packaging and displays.

Construction of a 160,000 sq. ft. machining and heat treating plant for **Fafnir Bearing Co.**, New Britain, Conn., on a 100-acre site in Newington, Conn., is now underway.

Rockwell Mfg. Co., Pittsburgh, has announced plans to build a 100,000 sq. ft. warehouse, assembly, and repair plant at Porterville, Calif. It will cost nearly \$1,000,000, and is expected to be finished early in 1956.

Fighting Flood Damage

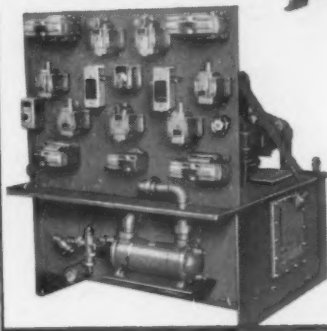
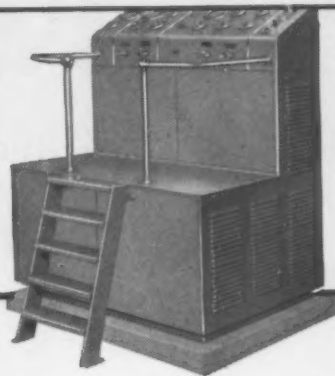


An order of 3,000 tons of standard rails and track accessories, rolled at the Steelton, Pa., plant of Bethlehem Steel Company on a "double rush" basis, was completely shipped to the Delaware, Lackawanna & Western Railroad in 10 days to help repair the August floods damage. Above, workmen on the line between Scranton and Stroudsburg are laying track made available by Bethlehem's rush shipment.

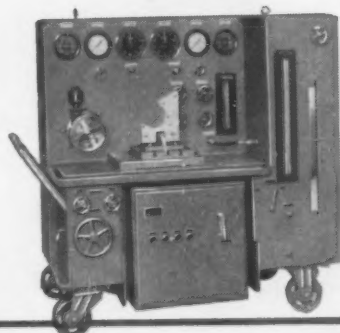
Besides the rails, the order included rail joints, tie plates, track spikes, track bolts, and frog and switch materials.

PURCHASING

Pulpit type power unit provides full visibility, easy accessibility.

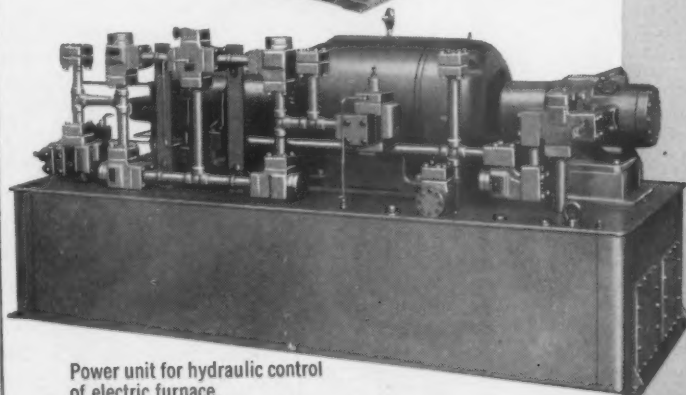
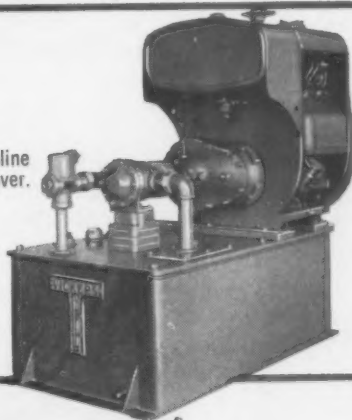


Compact power unit showing gasket-mounted valves.



Portable power unit for testing pumps.

Power unit with gasoline engine as prime mover.



Power unit for hydraulic control of electric furnace.

6837

Individually Designed to Meet *SPECIFIC* Needs

VICKERS®

Custom Built

HYDRAULIC POWER UNITS

DEPENDABLE PERFORMANCE

IMPROVE AND SIMPLIFY DESIGN

REDUCE INSTALLATION COST AND TIME

EASIER SERVICING

BETTER APPEARANCE

Vickers engineers approach the design of a custom-built hydraulic power unit from the standpoint of the customer's **INDIVIDUAL** needs. The sole objective is to meet HIS requirements with the best hydraulic "package". This assures the most compact, efficient and convenient hydraulic equipment for the particular machine.

A Vickers Hydraulic Power Unit includes all necessary pumps, valves, intermediate piping, oil reservoir, motors, controls, etc., as well as all hydraulic accessories (oil filters, air cleaners, oil level gauges, fittings, etc.). Hydraulic connections can be grouped in a convenient manifold.

In addition to the advantages mentioned above, each Unit is pretested at the factory and ready for immediate operation. Vickers undivided responsibility for the entire hydraulic control system is also an important feature to both the machine builder and his customer. Write for Bulletin 52-45.

VICKERS Incorporated

DIVISION OF SPERRY RAND CORPORATION

1566 OAKMAN BLVD. • DETROIT 32, MICH.

Application Engineering Offices: • ATLANTA • CHICAGO • CINCINNATI • CLEVELAND • DETROIT • HOUSTON • LOS ANGELES AREA (El Segundo) • MINNEAPOLIS • NEW YORK AREA (Summit, N.J.) • PHILADELPHIA AREA (Media) • PITTSBURGH AREA (Mt. Lebanon) • PORTLAND, ORE. • ROCHESTER • ROCKFORD • SAN FRANCISCO AREA (Berkeley) • SEATTLE • ST. LOUIS • TULSA • WASHINGTON • WORCESTER

IN CANADA: Vickers-Sperry of Canada, Ltd., Toronto

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

*Something
goes into
this box
besides aspirin...*



NATIONAL FOLDING BOX

C O M P A N Y . I N C .

SUBSIDIARY OF FEDERAL PAPER BOARD COMPANY, INC.

SALES OFFICES: CHRYSLER BUILDING, NEW YORK 17, N.Y.; NEW HAVEN AND VERSAILLES, CONN.; BOGOTA, N.J.; BOSTON AND PALMER, MASS.; STEUBENVILLE, OHIO; PHILADELPHIA AND PITTSBURGH, PA.

FOLDING BOX PLANTS: BOGOTA, N.J.; NEW HAVEN AND VERSAILLES, CONN.; PALMER, MASS.; STEUBENVILLE, OHIO; PITTSBURGH, PA. PAPER BOARD MILLS: BOGOTA, N.J.; NEW HAVEN, MONTVILLE AND VERSAILLES, CONN.; READING, PA.; STEUBENVILLE, O.; WHITE HALL, MD.

For More Information Circle No. 361 on Inquiry Card—Page 17

suppliers

James Bush, Jr., has been made New England representative of the **R. P. Adams Co., Inc., Buffalo**, manufacturers of heat exchange equipment and industrial water, chemical and gas filters. Mr. Bush will handle the complete Adams line in Maine, Vermont, New Hampshire, Rhode Island and eastern Massachusetts.



G. E. Ellis

Lipe-Rollway Corp., Syracuse, has appointed George E. Ellis as general sales manager.

Alfred H. Pope of the administrative staff of the **Metal Processing Chemicals Division, Pennsylvania Salt Mfg. Co., Philadelphia**, has been named sales representative in Cleveland. He succeeds James Keers, who was recently transferred to Detroit.

Several new distributors for Wright gasoline-powered saws have been announced by **Wright Power Saw and Tool Division, Sheboygan, Wis.**, of Thomas Industries, Inc., Louisville, Ky. They are: **R. E. Jarvis Co., Brookline, Mass.**, for Massachusetts, Connecticut and Rhode Island; **Northern Power Equipment Co., Yarmouth, Mass.**, in New Hampshire, Vermont and Maine; **Port Huron Co., Kansas City, Mo.**, for the extreme northwest part of Missouri, all of Kansas and the northern part of Oklahoma; and **Port Huron Machinery & Supply Co., Lincoln, Neb.**, in Nebraska.

FLEXLOC AT WORK



Power Hack Saw Builder Fastens blade guides with FLEXLOC self-locking nuts. Eight of these one-piece, all-metal locknuts are used in this assembly. And they won't work loose, regardless of vibration.

You can get the same dependable service. FLEXLOCs come in a wide range of sizes, types and materials. They are stocked by leading industrial distributors everywhere. Ask your local man for Bulletin 866. Or write STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

Use FLEXLOCs anywhere:

ON ROUGH BOLTS. FLEXLOCs smooth out bolt threads without damaging their own threads.

IN TEMPERATURES TO 550° F. in plated nuts and even higher in unplated ones. High temperatures do not affect FLEXLOCs. Nuts with non-metallic inserts fail under such conditions.

AS LOCK OR STOP NUTS. After at least 1½ threads of a standard bolt are past the top of the nut, the FLEXLOC stays put.

REGARDLESS OF MOISTURE, OIL, DIRT AND GRIT. Even conditions like these do not affect the locking ability of FLEXLOCs.



FLEXLOC
LOCKNUT DIVISION

SPS

JENKINTOWN PENNSYLVANIA

Your Browning Distributor offers...

COMPLETE POWER TRANSMISSION SERVICE

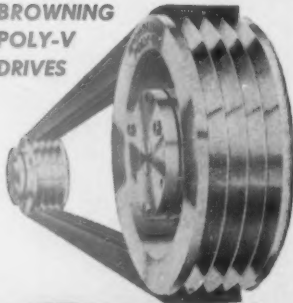


BROWNING
GRIPBELT
DRIVES

BROWNING
ROLLER CHAIN
DRIVES

BROWNING
POLY-V
DRIVES

BROWNING COUPLINGS



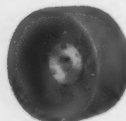
CHAIN



RIGID

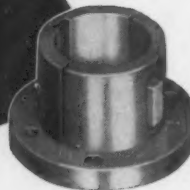


FLEXIBLE



BROWNING
PAPER
PULLEYS

All with
Browning's Malleable
Split Taper Bushing



Your Browning distributor is a dependable source of power transmission equipment. His engineering services, backed by the complete Browning line, enable him to select that equipment exactly suited to your particular need. Browning Gripbelt drives, chain drives, couplings and paper pulleys all utilize one simplified bushing system, are therefore simpler, more efficient, easier to install and maintain. Off-the-shelf, ready to use. Call on your Browning distributor to survey your facilities. You'll find his help invaluable. Ask him or write us for Catalog GC101.

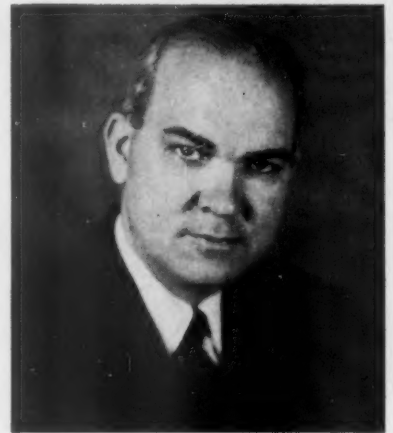
Browning

MANUFACTURING COMPANY
MAYSVILLE, KENTUCKY

For More Information Circle No. 363 on Inquiry Card—Page 17

suppliers

Hy-Pro Tool Co., New Bedford, Mass., has named the Mad River Supply Co., Springfield, O., as a new Hy-Pro stocking distributor. Hy-Pro also announced the appointment of Francis T. Thorley as assistant sales manager.



J. T. Harrison

Union Bag & Paper Corp., New York, has named John T. Harrison as director of corrugated container and board sales.

The appointment of Ralph Cokeley as Vickers' representative handling military aircraft hydraulic systems at Wright Field, Dayton, has been announced by Vickers Inc., Detroit.

Joseph T. Ryerson & Son, Inc., Chicago, has made Harold E. Stavers sales manager for its Detroit steel service plant.

R. A. Paulbach has been appointed to the sales management staff of the western division of Resistoflex Corp., Belleville, N. J.

Cochrane Corp., Philadelphia, manufacturers of water conditioning equipment, steam specialties, and C-B condensate return systems, has named M. C. McKeown as manager of the Philadelphia district sales office.

P. T. Lagrone has been appointed manager of electric utility sales for Westinghouse Electric Corp., Pittsburgh.

For More Information Circle No. 364 on Inquiry Card—Page 17→



NEW STYLE 46-D

For accurate reconditioning of all types of single-point boring, turning and facing tools; also dovetail and straight shank form tools. This grinder has a new in-built motor spindle designed for maximum rigidity. Wheels are mounted on the spindle shaft. Ball bearings are lifetime lubricated. Tool rest tables are at a comfortable height for operator convenience.



**NEW
STYLE
49-A**

A heavy-duty grinder that takes carbide, cast alloy and high-speed steel tools, medium and large size.

This new grinder has a new coolant system; is easier to clean and stays clean longer; troughs and coolant return lines are bigger, more accessible, and a settling tank is added.

There's an Ex-Cell-O Grinder to suit the needs of every shop, large or small. For new low prices on the above models, and for data on Ex-Cell-O's complete tool grinder line, write to Detroit, or call your local Ex-Cell-O Representative.



55-2

NEW

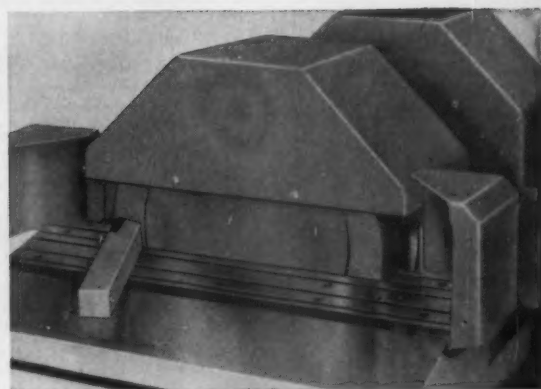
EX-CELL-O

CARBIDE

TOOL

GRINDERS

STYLES 46-D AND 49-A



LARGE TOOL REST TABLES

Illustrated is the tool rest table on the Style 49-A. It supports the biggest tools firmly. Adjustment is quick and easy to the required angular setting, and to compensate for wheel wear.

Wheel spindle is permanently lubricated.

EX-CELL-O

CORPORATION

DETROIT 32, MICHIGAN

MANUFACTURERS OF PRECISION MACHINE TOOLS •
GRINDING SPINDLES • CUTTING TOOLS • RAILROAD PINS
AND BUSHINGS • DRILL JIG BUSHINGS • AIRCRAFT AND
MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

MORE FLEXIBILITY IN YOUR SHOP



Model No. 706

Harden, heat treat, temper and anneal with one furnace . . . the Johnson No. 706.

Another in the Johnson line of dependable gas equipment has won its place in both large and small shops and plants. Operators like its easy adaptability. Six Johnson Direct Jet Bunsen Burners with individual shut off valves and pilot lights provide steady, easily controlled heat from 300 to 1850° F. Semi-muffled type with burners operating below Carbofrax hearth. Firebox: 7" x 13" x 16 1/2". Also available bench style. Write for complete and factual information.

A smaller version of this highly flexible furnace is the No. 654. Four burners deliver 300 to 1800° F. Firebox: 5" x 7 3/4" x 13 1/2". Available as pedestal or bench style.

JOHNSON GAS APPLIANCE CO.

603 E Avenue, N. W., • Cedar Rapids, Iowa

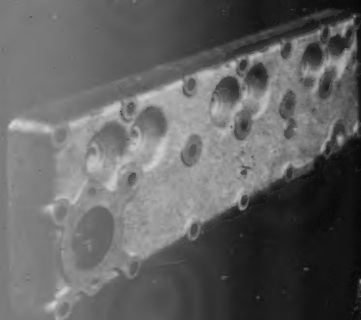
Johnson No. 706	Pedestal Style	\$312.00
	Bench Style	\$287.00
Johnson No. 654	Pedestal Style	\$174.00
	Bench Style	\$149.00

F.O.B. Factory

JOHNSON INDUSTRIAL GAS EQUIPMENT

Furnaces • Burners • Torches • Valves • Mixers • Blowers
For More Information Circle No. 365 on Inquiry Card—Page 17

**BORES MOTOR BLOCKS 22% FASTER—
AND WITH 28% LESS TOOL WEAR**



...thanks to

FERROCARBO®

Users everywhere report similar experiences. In fact, on 67 machining tests in 11 large machine shops, castings of gray iron treated with FERROCARBO averaged 89.5% greater machinability per tool than untreated castings. These premium castings are finer-grained, denser, stronger, yet they **COST YOU NO MORE**... because your foundryman, using FERROCARBO, makes worthwhile savings in raw material costs.

FOR FREE BOOKLET on FERROCARBO, citing actual case histories of faster machining, with longer tool life, write The Carborundum Company, Dept. 34, Niagara Falls, N.Y.

04-54

CARBORUNDUM®

For More Information Circle No. 366 on Inquiry Card—Page 17

**YOU CAN KEEP THIS BUYING GUIDE
RIGHT ON YOUR DESK**



Specialized industrial buying guide is handy tool for industrial executives looking for cost-saving supply sources.

Can be lifted with one hand (weighs 10 lbs.), yet it's surprisingly complete, due to concentration in industrial products, plus ingenious indexing system.

Keep it right on your desk. Save valuable time.

Conover-Mast Purchasing Directory

205 E. 42nd St., New York 17

To Award \$1,000 for Best Stainless Steel Article

An award of \$1000 for the best article in a 1955 issue of an industrial business publication on the subject of stainless steel parts or components has been established by Allmetal Screw Products Company, Inc., Garden City, N. Y.

The winning article will be chosen on the basis of its value and interest to buyers of stainless parts or components. Allmetal's aim in establishing the annual award is to "focus attention to significant findings in stainless steel cost reduction applications and developments." It also has an objective, "to help maintain professional standards of trade magazine editorial features."

Prominent members of the steel industry have been selected as judges. They are: James D. Glenn, general manager of sales, Stainless Division, Crucible Steel Company of America; Richard Paret, secretary, Committee of Stainless Steel Producers, American Iron & Steel Institute; F. Price Norris, Jr., Director of Stainless Steel Sales, Allegheny Ludlum Steel Corp. and R. G. Sloan, manager, development engineering, Armco Steel Corporation.

Winners will be announced by Allmetal Screw Products on February 15, 1956. The magazine carrying the winning article will receive the Stainless Steel Plaque award. Three honorable mention citations will also be awarded.

You Can Now Order Aluminum In Any Color

Color anodized aluminum sheet, tube, extruded shapes and fasteners are now offered by Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa., in blue, green, yellow, gray, brown, gold and black metallic finishes. Shade variations of the standard colors can also be made available. Offering a fabricator a choice of color product directly from the mill will, it is believed, greatly enlarge design possibilities as products will be freed from conventional painted and silvery finishes and be offered in gold and other metallic hues with the color finishes being actually part of the aluminum metal itself.

**PLEASE USE
INQUIRY CARD—PAGE 17**

RINGS

ROLLED & WELDED

FROM A

MILL-ROLLED SECTION

SAVED

\$220.63

EACH*

A ring originally designed to be machined from a casting that weighed 390 lbs. cost the buyer \$280.00. Working with American Welding the part was re-designed to be machined from a rolled and flash welded ring made from a special mill-rolled shape.

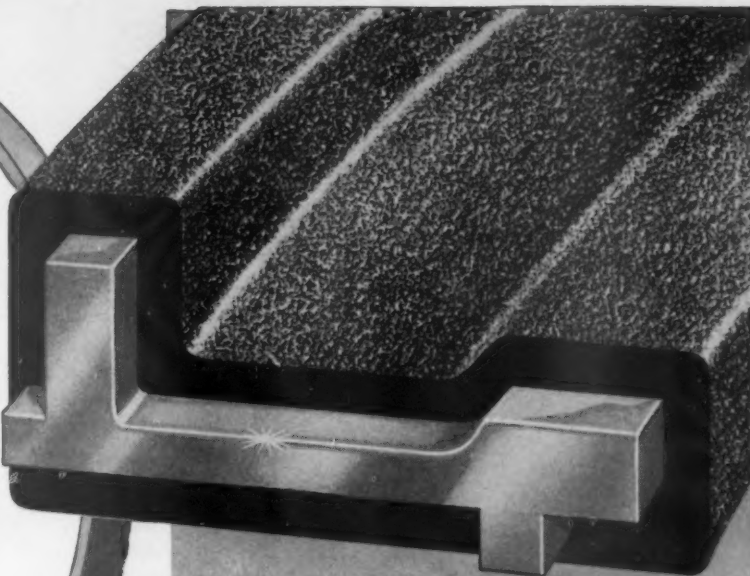
These triple savings resulted:

1. Basic cost of the ring, before machining, was reduced to \$59.37 — a savings of \$220.63.
2. Critical material used, before machining, was reduced to 94.5 lbs.— a saving of 295.5 lbs.
3. The contour shape of the mill-rolled section saved additional time and money on finished machining.

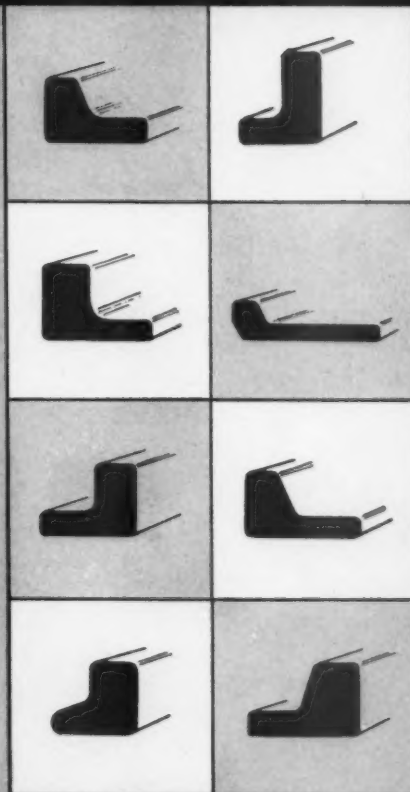
*Actual case from a leading manufacturer of jet aircraft engines.

AMERICAN WELDING

THE AMERICAN WELDING & MFG. CO.
460 DIETZ ROAD, WARREN, OHIO



**TYPICAL MILL-ROLLED AND EXTRUDED SHAPES
AVAILABLE FROM AMERICAN WELDING**



Can American Welding help cut costs in your plant? Send us your blueprints. We will be glad to study your problem.



Name

Address

City State



BAY STATE MOUNTED WHEELS & POINTS

These **"WHEELS of PROGRESS"** are establishing outstanding records of achievement and dependability.

They are uniform in density and hardness.

All shaped points are trued to exact size and shape *after* mounting on spindle, positive test of ability to hold to spindle . . . run-outs can't occur . . . ready for action, dressing before using not required.

Deep knurling for extra safety, in high strength alloy steel spindles and special adhesive . . . the abrasive heads stay on spindles.

Longer useful life . . . can be used right down to the spindle.

A wide range of shapes and specifications available for immediate shipment from distributor and/or warehouse stocks.



Call on your local BAY STATE DISTRIBUTOR, he's a key man on all grinding problems.



This New Mounted Point Handbook is packed with information about BAY STATE Mounted Wheels and Points, including bonds, lubricant treatments, etc. Send for your copy today.

**BAY STATE ABRASIVE PRODUCTS CO.,
Westboro, Mass., U.S.A.**

Branch Offices and Warehouses — Bristol, Conn.;
Chicago, Ill.; Cleveland, Ohio; Detroit, Mich.; Pittsburgh, Pa.

Distributors — All principal cities

In Canada: Bay State Abrasive Products Co. (Canada) Ltd., Brantford, Ont.

Manufacturers of all types of Quality Abrasive Products





ALLOY SPECIAL WIRE SHAPES

Cut Costs . . .
Improve Product Performance

Alloy Special Wire Shapes reduce costly machining time and cut metal waste. No need to start with round wire and machine half of it away to get the shape you want. We can supply you with Stainless Steel and Nickel Alloy wire in just about any special shape you may require.

Drawn Alloy Wire Shapes provide other advantages in addition to reduced costs. Product quality and performance are also improved. The drawn wire insures uniformity of cross-section and a smooth, flaw-free surface.

Send today for information on Alloy Special Wire Shapes — and for our Nickel Alloy and Stainless Steel Properties Charts . . .



ALLOY METAL WIRE DIVISION



H. K. PORTER COMPANY, INC.
Prospect Park, Pennsylvania

For More Information Circle No. 369 on Inquiry Card—Page 17

Purchasing—A Creative Activity at Norris-Thermador

Abstract of an address by
Mr. Kenneth T. Norris, President
Norris Thermador Corp.
at the Ninth Pacific-Intermountain Purchasing
Conference

Norris-Thermador is comprised of six separate plants—three in Los Angeles, one near Pomona, one near Modesto and one in Milwaukee.

Our purchasing is largely decentralized. A. J. Lindemann & Hoverson Company, in Milwaukee, has its own purchasing department. Our Walnut Division, near Pomona, has one man. There is one purchasing department for Thermador Electrical Manufacturing Company and Thermador Electronics Division in Los Angeles. Our main Norris-Thermador headquarters in Vernon has a purchasing department which also serves the Riverbank Ordnance plant near Modesto.



Kenneth T. Norris

Some supply contracts are placed for total company requirements. Purchasing agents exchange information and combine purchases on some items. The traffic manager at Vernon serves all plants. Otherwise each purchasing department operates quite independently.

For purposes of this discussion, I will describe operations of the Vernon purchasing department only, according to the following information supplied by Mr. R. R. Stoddard, our Manager of Purchases.

Organization

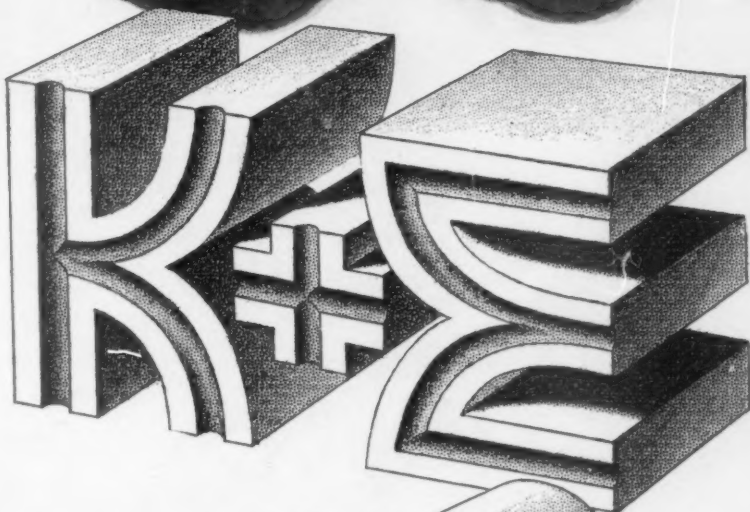
The Purchasing Department functions through the Manager of Purchases who reports to the President of the Company. He is responsible for compliance with established policies, for the performance of duties assigned, and general supervision of purchasing functions.

The total staff of the Purchasing
(Please turn to page 292)

7,000

7,000 ITEMS A KEY TO K&E LEADERSHIP
*Drafting, Reproduction, Surveying,
 Optical Tooling Equipment and Materials
 Slide Rules Measuring Tapes*

● Since 1867 engineers, scientists, designers, surveyors, draftsmen have relied on K&E as the foremost, most progressive, and most complete source of supply for the tools, equipment, and materials they work with. When you buy, think first of K&E, headquarters for 7,000 items. For example...



**ZEISS Ni2
 SELF-LEVELING LEVEL**

This amazing new instrument cuts leveling time and costs in half. It sets a line of sight precisely level *automatically*. A remarkable new invention, the Compensator, built into the telescope levels the line of sight for you in a matter of moments. It performs any kind of leveling, from rough cross sectioning to first order work. Bench-mark leveling, using two rods, is almost twice as fast with the Ni2 as with an ordinary level. Cross-sectioning with many sights from one set-up is even faster. Accurate up to ± 0.02 ft. per mile, the Ni2 is as rugged as its appearance suggests.



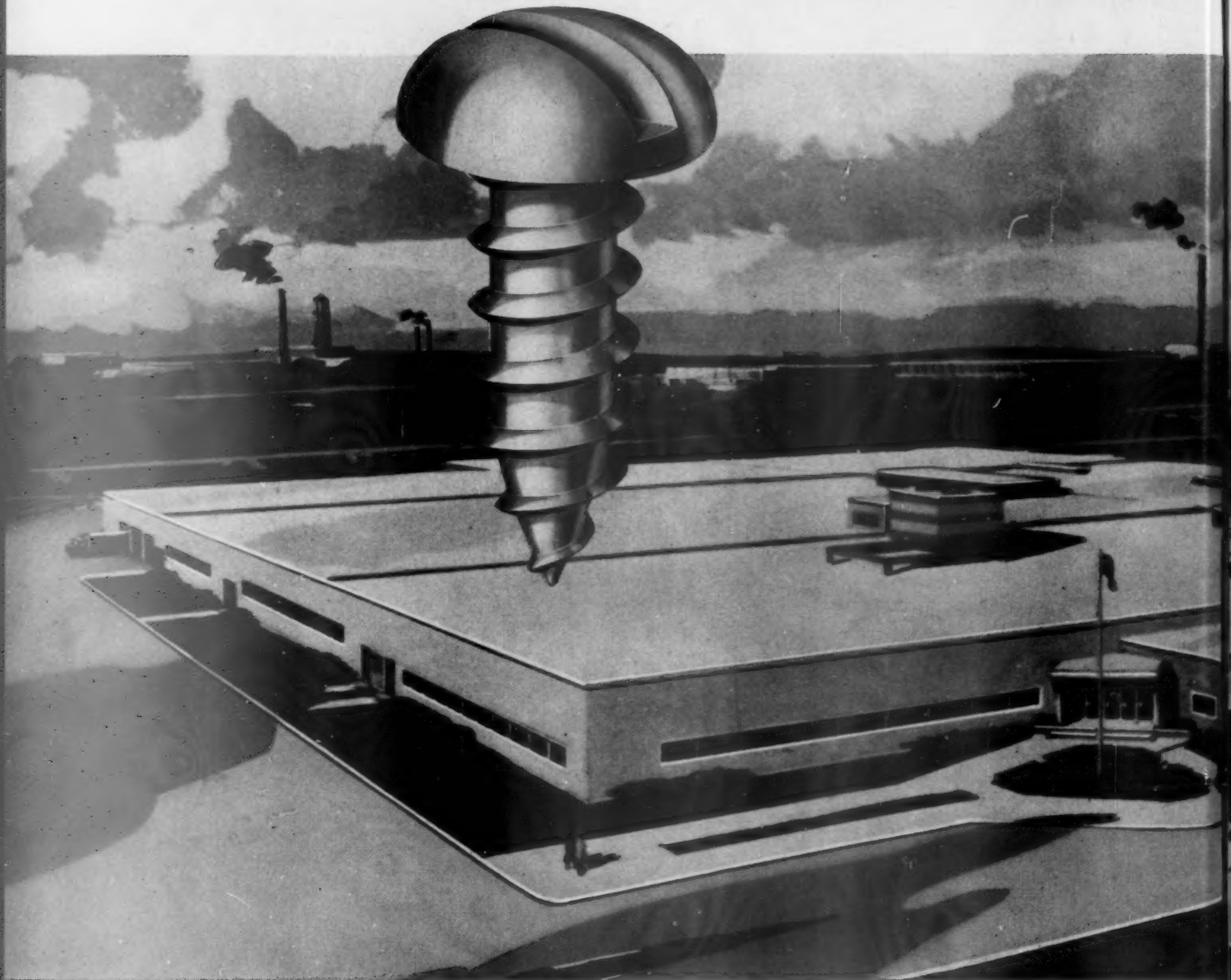
**KEUFFEL & ESSER CO.
 New York • Hoboken, N. J.**

Detroit • Chicago • St. Louis • Dallas • San Francisco • Los Angeles
 Seattle • Montreal
 Distributors in Principal Cities

For More Information Circle No. 370 on Inquiry Card—Page 17
 DECEMBER, 1955

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 289

the new **PARKER**



IN CLIFTON, N. J. About 10 miles from New York City.

267,000 SQUARE FEET of floor space, with 225,000 sq. ft. for manufacturing: the remainder for offices, shipping, etc.

PRODUCTION-FLOW DESIGN Single-floor layout that permits progressive flow of products through processing operations.

MECHANIZED MATERIALS-HANDLING Special conveyor systems and other modern equipment provide advanced degree of automation, and speed production.

AUTOMATIC HEAT TREATING equipment, of P-K design, is typical of new production facilities for highest efficiency.

ADVANCED QUALITY CONTROL Newest inspec-

SELF-TAPPING SCREWS

• **SOCKET SCREWS**

• **SCREWNAILS**

• **MASONRY**

NAILS



-KALON[®] plant . . .

**Production facilities
matched with an
unequalled experience
... to offer you more
assembly savings**

Starting with a revolutionary idea, the *original* Sheet Metal Screw, Parker-Kalon has become the leading manufacturer of Self-tapping Screws and other fasteners essential to low-cost assembly of thousands of the nations best-known products.

Industry's reliance on Parker-Kalon has brought about this growth, and the new Parker-Kalon plant, in a real sense, was built to your specifications.

In this great new plant, P-K Fasteners will be produced in larger volume to meet steadily increasing demand. Advanced engineering facilities will also contribute to P-K progress in research and development.

Parker-Kalon's unequalled "know-how" is now matched with the finest facilities for all operations. Now, more than ever, you can be sure . . . "If it's P-K . . . it's OK!"



tion and testing equipment guards P-K quality standards.

PACKING AND SHIPPING area is fully equipped for rapid handling of large stocks and shipment of orders.

AIR-CONDITIONED LABORATORY provides all modern requirements for research, fastener development, and performance tests.

PARKER-KALON DIVISION

**General American Transportation Corporation,
Clifton, New Jersey**

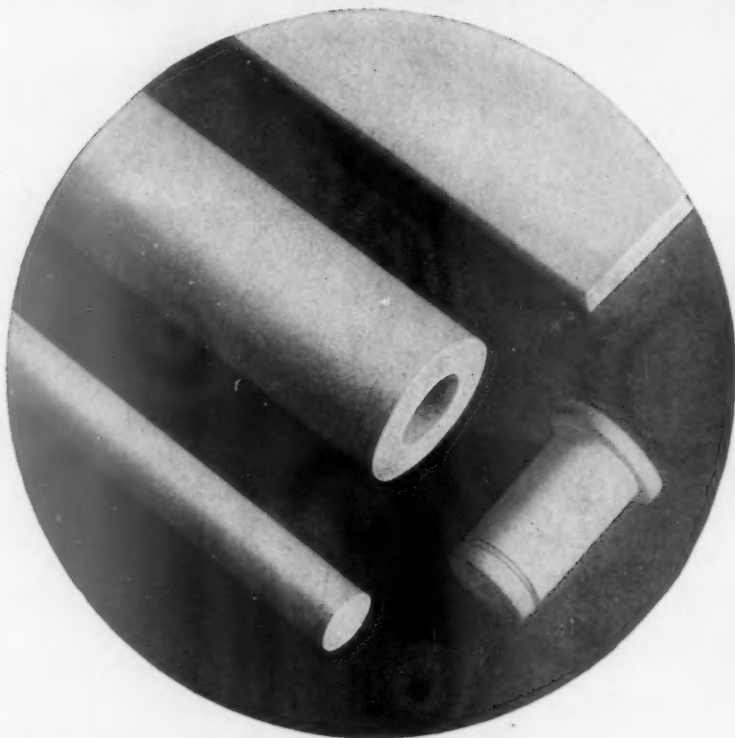
Sold through leading Industrial Distributors

STAPS* • WING NUTS • THUMB SCREWS



*Registered Trade-mark

What to look for when using TEFLON® products



All Teflon isn't equal. Apart from its well known chemical inertness, there are these distinct differences that can affect performance and durability:

Non porosity . . . FLUOROFLEX®-T "electrical grade" rods, tubes and sheets are produced with no porosity. Conformance to major electrical and physical properties is *certified*.* This assures you reliable operation in even the most critical low loss applications.

Dimensional Stability . . . Increased resistance to elongation is offered you by "mechanical grade" FLUOROFLEX-T . . . which is now available in extruded rods and tubes

Machinability . . . Stress relieving of all FLUOROFLEX-T products means uniform parts, easier machining, and fewer rejects.

Product Quality . . . Available in rods, sheets and tubes, in mechanical parts to your specification, in R-3800 hose assemblies, all FLUOROFLEX-T products have this in common — fabrication under a quality control system approved by the USAF under MIL-Q-5923.

Send for details and for quotations on your needs.

*Copies of test reports on file available on request.

®Fluoroflex is a Resistoflex registered trade mark for products from fluorocarbon resins. Teflon is the DuPont registered trade mark for its tetrafluoroethylene resin.

RESISTOFLEX

CORPORATION

• Belleville 9, New Jersey

Warehousing Distributors: Western Fibrous Glass Products Co., Los Angeles, Calif.
Colonial Kolonite Company, Chicago, Ill. • F. B. Wright Company, Detroit, Mich.

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(Continued from page 288)

Department consists of—

Manager of Purchases
Assistant Manager of Purchases
2—Senior Buyers
2—Junior Buyers
Traffic Manager
12—Secretaries, Clerks and Stenographers

Responsibilities

It is the responsibility of the Purchasing Department to competitively purchase materials and services efficiently and ethically, to explore markets for new materials, new products and new sources, to expedite delivery, to receive and audit invoices and approve for payment, to dispose of scrap and surplus, and to handle complaints against suppliers.

Policy

To purchase materials, supplies, services, machinery and equipment at the lowest delivered cost after due consideration to quality, service, delivery and reliability of the supplier. Every effort is made to avoid placing the business with a supplier who cannot make a profit on the assumption that each business transaction must be good for both the buyer and the seller.

Relations With Other Departments

The Purchasing Department co-operates closely with all interested departments and distributes information as to the availability of materials, price changes, new material or product developments and economic factors which may influence either price or delivery.

Public Relations

It is the responsibility of the Purchasing Department to conduct its transactions in such a manner as to build up good will for Norris-Thermador Corporation through courteous treatment of vendors' representatives, honesty and fairness in all of its transactions.

Reciprocity

We place business with our customers only when quality, service, price and delivery are comparable with competition. We naturally prefer to do business with our customers, but will not pay a premium to buy from them.

Every effort is made to provide prospective vendors with detailed and clear specifications so as to

(Please turn to page 296)

PURCHASING

NEW LEVELUME PROCESS INTRODUCED BY H-VW-M

First Nickel Plating Process Combining Full Brightness with "Truly Amazing Leveling" announced by Matawan, N. J. Firm.

Matawan, N. J. — Levelume, a new bright nickel process giving deposits combining "full brightness with truly amazing leveling," was released for general use today by Hanson-Van Winkle-Munning Company, Matawan, N. J., suppliers to the metal finishing industry. Officials of the company stated that the Levelume Process is a milestone—the first nickel process to combine qualities of brightness, high leveling and exceptional speed.

Years of research went into the development of the process, and the result, according to H-VW-M officials, is a process imparting "optimum qualities of brightness, leveling, surface activity, ductility and controlled stress at exceptionally high deposition rates."

The process has already been field tested in several high production automatic conveyors. One leading auto parts producer, it is reported, has increased production well over 100% without investing in new conveyors, enlarging tanks or changing racking methods.

Newly discovered addition agents are the key to the phenomenal success of Levelume. With the new process, plating is done at higher temperatures and higher current densities. Air agitation and continuous filtration through activated carbon prevent contamination build-up that normally leads to deterioration of the deposit's physical properties.

The (B) the i featu the o auto treat are serv bec Sta ve th An it a qua spe flow Lead asse the plac Self- (E) eithe step circ co An the cen cor un cyc rad tan ma dis Plac cle pi ot cal de ex ci ef ve us T he vi is w tr

Levelume

READ ABOUT THE NEW PRODUCTION-PROVED
H-VW-M NICKEL PROCESS THAT COMBINES
BRIGHTNESS AND EXCEPTIONAL LEVELING
WITH UNUSUALLY HIGH SPEED

This outstanding, new, high-speed LEVELUME PROCESS has all these advantages—

HIGH BRIGHTNESS—Recessed areas have uniform brightness without shading... subsequent deposits are brighter.

EXCEPTIONAL LEVELING—Because of high scratch-filling properties, polishing and buffing can be substantially reduced, sometimes even eliminated. Enormous savings result.

WIDE CURRENT DENSITY RANGE—Can vary from 20-150 asf (normal 60-100 asf). Higher current densities mean faster plating and reduction in equipment, floor space and manpower.

HIGH THROWING POWER—Recesses are covered satisfactorily and good distribution of deposit makes specification conformance possible without piling-up nickel on exposed portions.

CONTROLLER STRESS—No cracking, crazing, lifting or brittleness of deposits.

HIGH DUCTILITY—Comparative tests show good ductility which is maintained even after continued bath use.

EXCELLENT CORROSION PROTECTION—Equal to deposits from other bright or leveling solutions.

VERSATILE—Can be used as single coating or, if higher corrosion protection is desired, a Nickel-Lume top coat can be applied.

EASY SOLUTION CONVERSION TO LEVELUME—With few exceptions other bright nickel baths can be converted.

HIGH SURFACE ACTIVITY—Plated surfaces accept chromium and other deposits without activating treatments. You'll experience none of the ordinary difficulties of other bright nickel processes when you use LEVELUME. One manufacturer reduced chromium plating rejects 12 per cent using Levelume.

— and these advantages, too . . .

- Bath Stable in Operation
- Pleasing White Color Deposits
- Simple Control
- No Objectionable Fumes
- High Tolerance to Impurities
- Low Operating Costs

LEVELUME is already proving its unusual value to enthusiastic users across the country. You can get complete details, and the Levelume Instruction Manual, by writing H-VW-M.



PLATEMANSHIP

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

HANSON-VAN WINKLE-MUNNING COMPANY

Plants: Matawan, New Jersey • Grand Rapids, Michigan

SALES OFFICES: Anderson (Ind.) • Baltimore • Beloit (Wisc.) • Boston Bridgeport • Chicago • Cleveland • Dayton • Detroit • Grand Rapids Los Angeles • Louisville • Matawan • Milwaukee • New York • Philadelphia Pittsburgh • Plainfield • Rochester • St. Louis • San Francisco • Springfield (Mass.) • Utica • Wallingford (Conn.)



H-VW-M

1032

INDUSTRY'S WORKSHOP FOR THE FINEST IN PLATING AND POLISHING PROCESSES • EQUIPMENT • SUPPLIES

DECEMBER, 1955

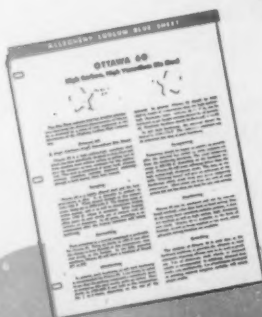
For More Information Circle No. 373 on Inquiry Card—Page 17

**NO GALLING
NO PICKUP
MULTIPLIED PRODUCTION RUNS**



OTTAWA 60

for DRAW DIES is *NEW...and NEWS!*



**Write for a copy of the
OTTAWA 60 BLUE SHEET**

This Blue Sheet contains certified data on the physical characteristics of Ottawa 60, prepared from carefully checked laboratory and field service tests. All the information you'll need on methods of handling and heat treatment, etc.

ADDRESS DEPT. P-72

In fact, this exclusive Allegheny Ludlum-developed die steel is mighty *good news* for any user of draw dies. Ottawa 60 is a high-carbon, high-vanadium analysis, initially designed for the primary purpose of drawing stainless steel.

In that service, Ottawa 60 does just exactly what it was developed to do: it performs without galling or pickup, and shows exceptional wear-resistance—as a long list of successful applications will prove to you. Two of them are illustrated above: a stainless hinge and a stainless sundae server.

But Ottawa 60 is a top performer on any draw die application! Also illustrated above are the two draws on a transformer housing of .037" gauge SAE 1010 strip. After more than 25,000 pieces—over 12 times any previous runs—there was still no sign of pickup, or of wear on the Ottawa 60 punch or die.

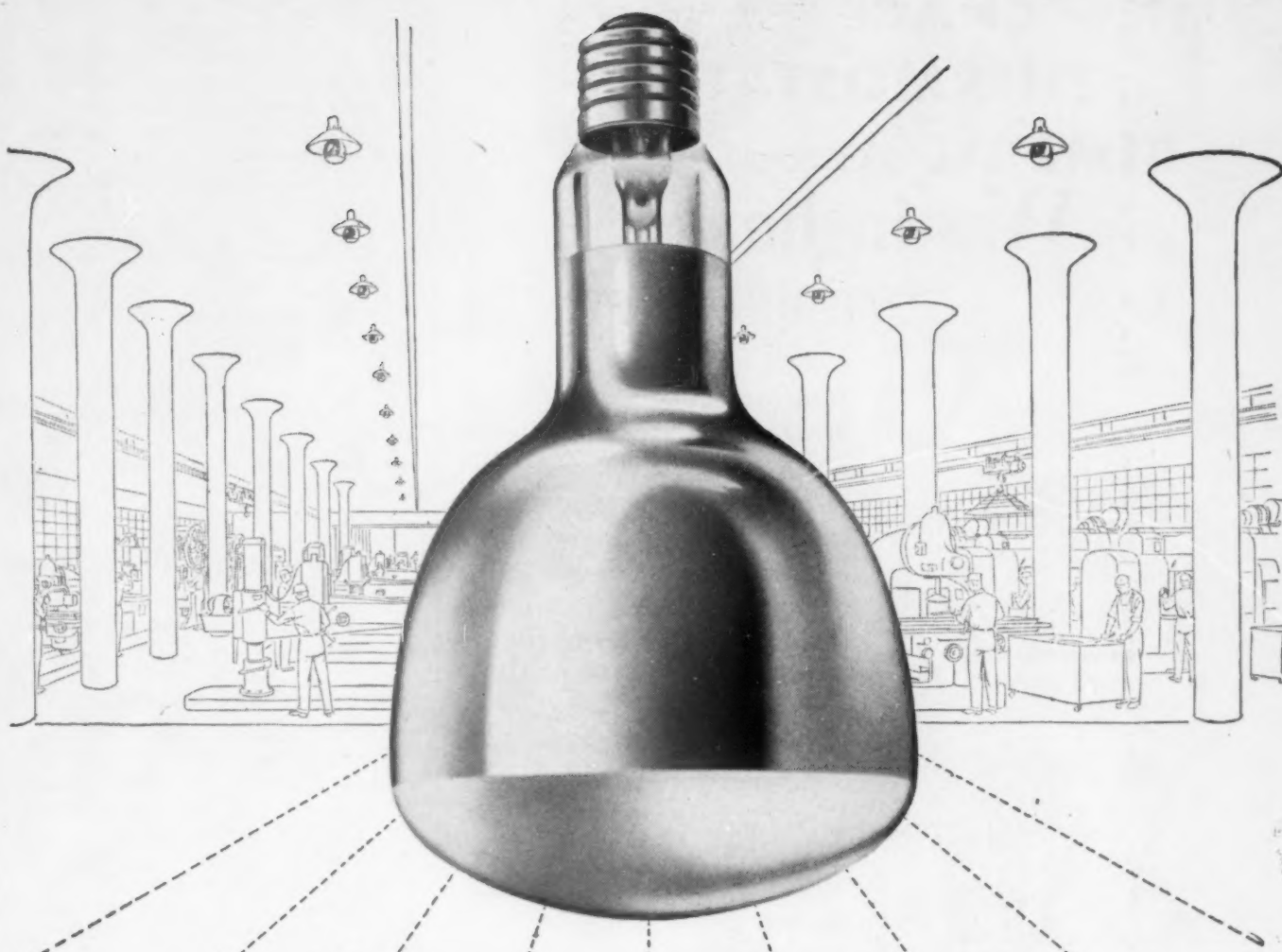
This analysis can solve your draw-die problem jobs—or reduce your costs on almost any drawing operation. • Call on our Mill Service Staff for any assistance. **Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa.**

**For complete MODERN Tooling, call
Allegheny Ludlum**

W&D 5581



For More Information Circle No. 374 on Inquiry Card—Page 17



The better factory lamp that banished reflector cleaning forever

DIRTY LAMP REFLECTORS. WASTE LIGHT. Cleaning them costs money; slows plant traffic. To put an end to these twin nuisances, Sylvania Research engineers designed a "high bay" lamp with the reflector *inside* the glass envelope, where dust and grime can never reach it.

By making the reflector an integral part of the lamp, illuminating efficiency is greatly improved, too. The Sylvania R-52 Reflector Lamp concentrates a clear, bright light directly on the working area. The R-52 gives more usable light for the same wattage—plus total freedom from reflector maintenance costs.

Now—in factories, processing plants and

foundries across the nation—this outstanding Sylvania lamp is giving more light at lower cost; setting new high standards for industrial illumination.

Sylvania R-52 Reflector Lamps are available in 500-watt and 750-watt sizes. For help with your industrial lighting problems, call your Sylvania Representative or write to Dept. 5L-4512, Sylvania.

SYLVANIA ELECTRIC PRODUCTS INC.
Lighting Division, Salem, Massachusetts
In Canada: Sylvania Electric (Canada) Ltd.
University Tower Building, St. Catherine Street,
Montreal, P. Q.



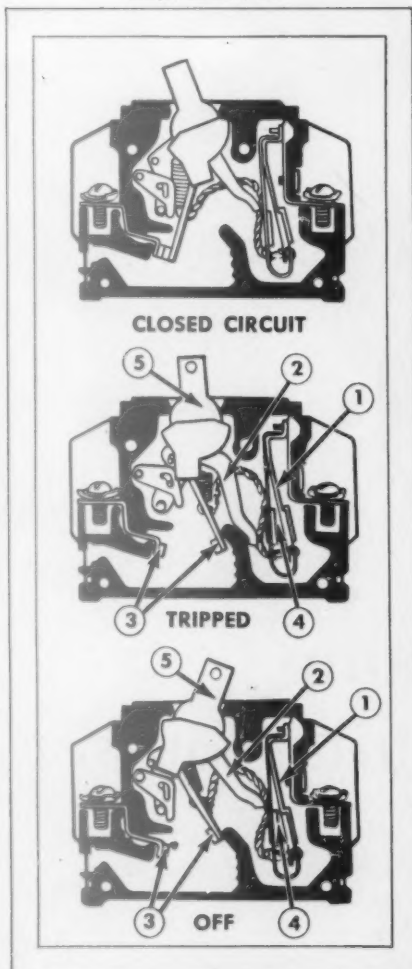
Lighting • Radio • Electronics
Television • Atomic Energy

Keep your eye on **SYLVANIA**

... fastest growing name in sight

How CHACE THERMOSTATIC BIMETAL Actuates the Westinghouse AB CIRCUIT BREAKER

Product of Westinghouse Electric
Corp., Beaver, Pa.



Westinghouse AB Circuit Breakers are made in a wide range of capacities and types to provide foolproof protection against electrical current faults in residential, commercial or industrial wiring systems. Westinghouse AB Circuit Breakers employ a thermal-magnetic action for sure response to gradual or sudden overloads and short circuit faults.

HOW IT WORKS

A Chace Thermostatic Bimetal element (1) responds to temporary overloads by deflecting in a direction away from the spring loaded latching arm (2) causing the contact rocker to break the circuit at contacts (3) in response to the same spring tension. Under conditions of sudden, high overload, the magnetic trip element (4) trips the latching arm in the same manner. A simple flip of the reset handle (5)

again closes the circuit after the fault has been cleared from the line.

Chace Thermostatic Bimetal is available in 29 different types, in coil, strip, or in complete elements fabricated to your specifications. To aid the product designer of thermally responsive devices, we offer a free 36-page booklet, "Successful Applications of Chace Thermostatic Bimetal." Write today for your copy.



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(Continued from page 292)

avoid misunderstandings. This is particularly necessary in the purchase of some classes of machinery and all special tools, dies, etc. The specifications must clearly set forth the responsibilities of each of the parties and the basis for final acceptance.

Pricing of Purchase Orders

All orders are priced at the time they are issued. Eventually the order must be priced and our experience has shown that it is best to do this at the time the order is placed. This keeps the buyer alert and responsible and while it takes some additional time of the buyer, it results in a time saving in auditing invoices.

Contracts

Such supply contracts as are placed are generally for a duration of one year.

Inventory Control

The Purchasing Department has the responsibility for the over-all control of inventories in accordance with authorized base inventories for each product established periodically by management. The authorized base inventories include raw material on hand, and raw material represented by both work in process and finished goods. Figures are compiled monthly to disclose the inventory situation on each product and new orders placed to maintain the authorized base inventory after taking into consideration necessary lead time.

Changes in the authorized base inventory are made periodically to reflect the outlook for sales or in tight material markets to allow for possible delays in shipments by vendors.

Last year our Vernon purchasing department spent 54 cents of every dollar of sales.

Now let's look at the overall operation of a business.

We all know that profits represent the differences between total selling prices and total costs. And that profits can be increased through:

1. Higher average selling prices.
2. Reduced costs, or
3. A combination of these factors.

Unfortunately there is nothing spectacular about a saving in the purchasing department. It is unlike a production saving which becomes obvious when you go into the shop, show off a complicated new ma-

(Please turn to page 300)



H. Thomas Hallowell, Jr.

"The industrial distributor is a specialist"

"He is the vital link between the maker of industrial products and the user of them." So says H. Thomas Hallowell, Jr., president of Standard Pressed Steel Co., Jenkintown, Pa. "The savings he effects in distribution reduce costs all the way along the line."

Here's how this specialist works for you:



He stocks vast quantities of industrial supplies—lowers your inventory costs.



He gives faster service—no time lost waiting for delivery. Because of him, Los Angeles is as close to SPS, in Jenkintown, Pa., as Philadelphia is.



He provides information about products, cost-saving methods, production techniques, trade practices, how to solve problems.



He reduces buying costs—one order, one follow-up, one check cuts paper work.

Call your SPS distributor today for more information about the products he stocks—socket screw products, locknuts, spring pins, shop equipment. Or write STANDARD PRESSED STEEL Co., Jenkintown 31, Pa., for the name of the nearest distributor.

UNBRAKO

FLEXLOC

HALLOWELL

STANDARD PRESSED STEEL CO.

SPS

JENKINTOWN PENNSYLVANIA

"Agreed! Airfreight's
the best way to
ship them. But, which
do we use?"



To be certain of fast, dependable service, ship your jobs by American Airlines Airfreight. The most experienced airfreight carrier, American also leads all other airlines in:

CAPACITY—with the largest cargo capacity, American has space where it's needed, when it's needed.

COVERAGE—with routes to more key cities than any other airline, American is able to provide the most direct one-carrier service.

SCHEDULES—with the most frequent schedules, American keeps terminal time to a minimum, assures you of prompt forwarding.

Check American, today. The rates are surprisingly low—even lower than some forms of surface transportation. For complete information, wire collect to American Airlines, Inc., Cargo Sales Division, 100 Park Avenue, New York 17, New York.

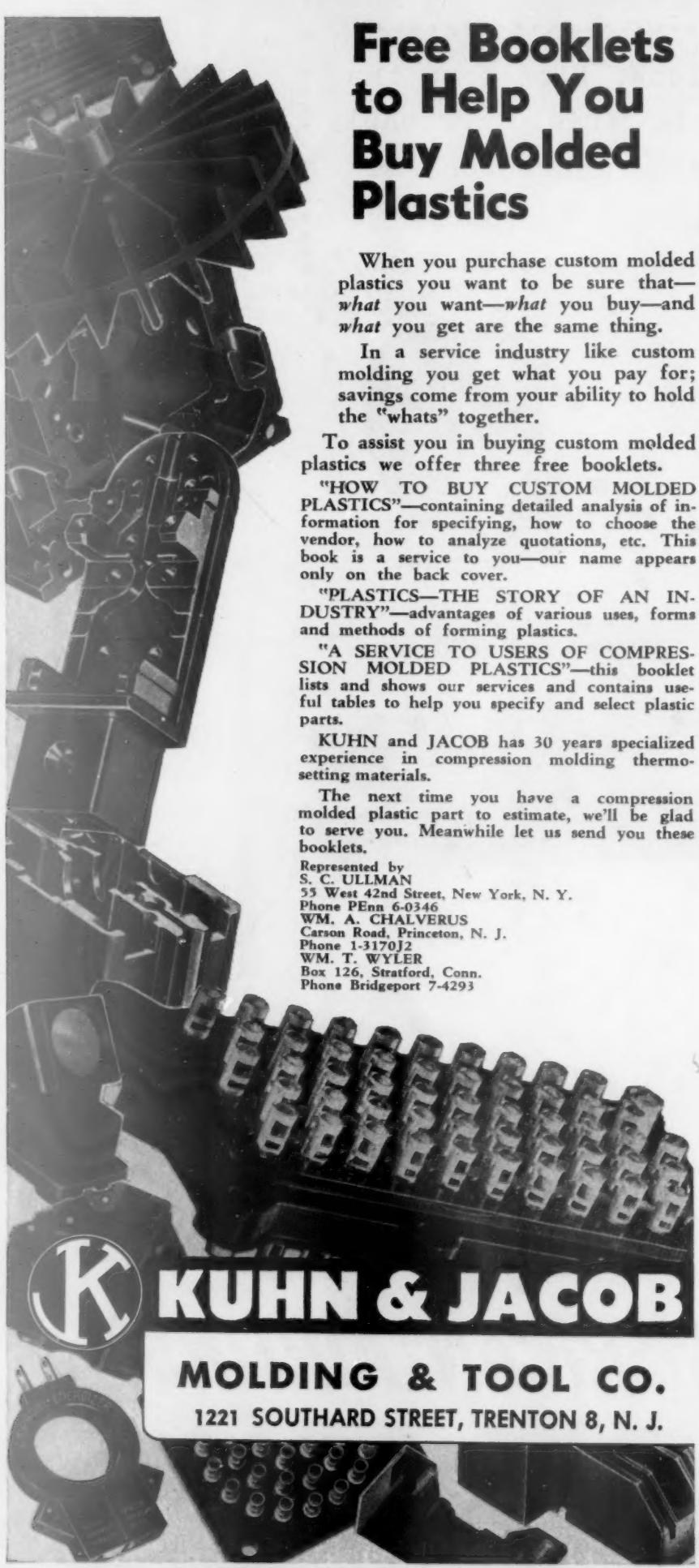
"American. Pioneered the
airfreight field. Probably
handled many problems
similar to yours.
You can depend on them."



AMERICAN AIRLINES

AIRFREIGHT

- carries more airfreight
than any other airline in the world



Free Booklets to Help You Buy Molded Plastics

When you purchase custom molded plastics you want to be sure that—*what you want—what you buy—and what you get* are the same thing.

In a service industry like custom molding you get what you pay for; savings come from your ability to hold the "whats" together.

To assist you in buying custom molded plastics we offer three free booklets.

"HOW TO BUY CUSTOM MOLDED PLASTICS"—containing detailed analysis of information for specifying, how to choose the vendor, how to analyze quotations, etc. This book is a service to you—our name appears only on the back cover.

"PLASTICS—THE STORY OF AN INDUSTRY"—advantages of various uses, forms and methods of forming plastics.

"A SERVICE TO USERS OF COMPRESSION MOLDED PLASTICS"—this booklet lists and shows our services and contains useful tables to help you specify and select plastic parts.

KUHN and JACOB has 30 years specialized experience in compression molding thermo-setting materials.

The next time you have a compression molded plastic part to estimate, we'll be glad to serve you. Meanwhile let us send you these booklets.

Represented by
S. C. ULLMAN
53 West 42nd Street, New York, N. Y.
Phone PE 6-0346
WM. A. CHALVERUS
Carson Road, Princeton, N. J.
Phone 1-317012
WM. T. WYLER
Box 126, Stratford, Conn.
Phone Bridgeport 7-4293



KUHN & JACOB

MOLDING & TOOL CO.

1221 SOUTHARD STREET, TRENTON 8, N. J.

(Continued from page 296)

chine and explain its wonders—and the resultant savings.

But, if you were to go into the plants of vendors you might find many improved machines and methods which resulted because the vendors were either encouraged or forced by the purchasing agent to cut their costs or lose out to competitors. So the purchasing agent indirectly brings about improved methods and reduced costs.

I want to emphasize one major point.

A dollar saved on purchases is just as big a dollar in the net profit column as one resulting from a higher selling price or a lower conversion cost. The stockholders cannot distinguish one from the other. And our purchasing agent has this opportunity to save on 60 cents out of each dollar of our total costs.

What are some of the ways in which he can best contribute toward increased earnings?

1. He must have a knowledge of the economic and market factors which influence supply and demand—and prices.
2. Often he can take advantage of the cyclical nature of the supplier's business by purchasing at the time when demand is lowest.
3. He must periodically review all purchasing procedures, all sources of supply, and all contract terms, and make such changes as are indicated.
4. Most important. He should have as much knowledge as possible regarding the supplier's production and costs. With this knowledge he can be a creative force in his company.

As an example, I would like to cite one of our experiences: We were bidding on a large Government contract requiring tremendous quantities of formed aluminum tubes to be used in containers for complete rounds of anti-aircraft ammunition. At that time, aluminum tubing cost approximately 51¢ per pound whereas sheet aluminum circles could be purchased for 29¢ per pound. The knowledge of this difference in cost suggested that if some method could be devised for automatically converting the sheet aluminum circle to the equivalent of the formed aluminum tube, our competitive position would be greatly improved. A completely new machine was conceived to perform this operation. The initial contract was secured and this was followed by

(Please turn to page 302)

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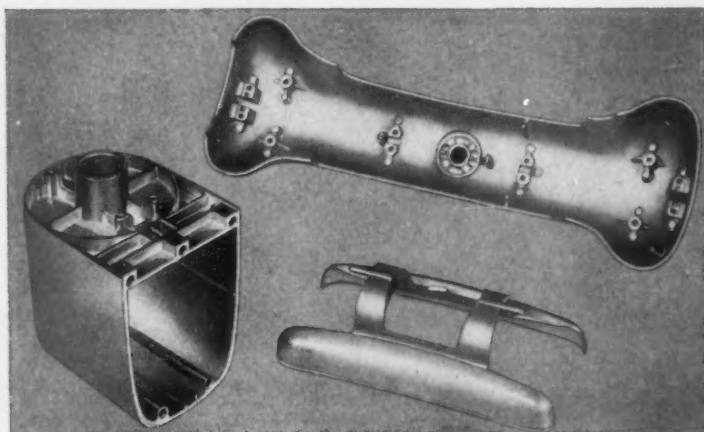
DIE CASTING REPORT

**Uniformity -- Less Machining --
Corrosion Resistance -- Close Tolerances**

-- are a Few Reasons Why



This wringer-type Maytag washer has 24 die-cast parts.



Wringer parts include: gear case, cap and clutch pulley.

Maytag uses 15 to 20 million die cast parts per year!

Having produced over 9 million washing machines, no one knows better than Maytag Co. the importance of maintaining quality while meeting high production schedules. Die castings have helped solve the problem—at economical unit costs—by providing unlimited qualities of identical component parts. At the same time, aluminum and zinc die-castings have met the critical demands of functional applications. Examples of Maytag requirements. die castings must be (1) oil and water tight for gear cases and housings (2) true to dimension for line assembly with mating parts and (3) free and clear of external surface flaws.

While Maytag is a large user, those with lower requirements may enjoy similar

economies and advantages. Let our creative design engineers look at your functional or decorative part needs, at no obligation of course.

For a copy of: "Die-Castings Unlimited." Address. Precision Castings Company, Inc., 199 Walnut Street, Fayetteville, N. Y.



Small zinc die-cast components, mostly functional.



Formerly sandcast, this washer cover is now an aluminum die-casting.

Switched to die castings from sand castings

Many of the die-cast parts in the Maytag automatic and wringer-type washer were formerly sandcast. Less machining, better surface quality, reduced finishing time are reasons for the changeover. Precision is one of the major die-casting suppliers to Maytag...and has been since 1938.

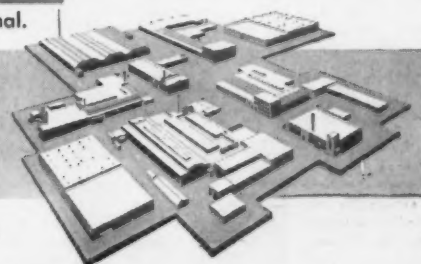


PRECISION CASTINGS CO., INC.

A SUBSIDIARY OF **Harrisburg Steel Corporation**



FAYETTEVILLE, N. Y. — SYRACUSE, N. Y. — CORTLAND, N. Y. — NEW YORK, N. Y.
CHICAGO, ILL. — CLEVELAND, OHIO — KALAMAZOO, MICH.



For More Information Circle No. 380 on Inquiry Card—Page 17

A BOUQUET FOR THE P. A.

MEMO TO: Purchasing Agent
FROM: Plant Manager

That prompt delivery we got on Flexon metal hose sure got us out of a jam. If we could get all our materials that fast, we could save plenty of time and money. I guess that's one of the advantages of a good distributorship set-up.

Thanks for getting us off the hook. And be sure to hang on to the Flexonics Distributor's number. We may need that on-the-spot service again.

John

When you need flexible metal hose in a hurry, all you have to do is call your Flexonics Stocking Distributor.

He handles the most complete line of flexible metal hose products offered by a single manufacturer. So save time and money when you're seeking metal hose. Whatever your needs, get them promptly from a dependable, primary source—your Flexonics Distributor.

No need to worry about quality either when you get your metal hose from your Flexonics Distributor.

Every piece of Flexon metal hose is backed by manufacturing experience second to none—over 53 years. All types have been proved in service in thousands of applications.

When you need flexible metal hose, buy with confidence—and buy the convenient, time- and money-saving way—from your Flexonics Distributor.



Catalog 147 gives full data on all types of Flexon hose. Ask your distributor for a copy or write direct.

Flexonics

Corporation..... CHICAGO METAL HOSE DIVISION

1316 S. THIRD AVENUE • MAYWOOD, ILLINOIS

— FORMERLY CHICAGO METAL HOSE CORPORATION —

Flexon identifies products of Flexonics Corporation that have served industry for over 53 years.



Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components. In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

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(Continued from page 300)

at least \$25,000,000 of sales.

In this instance, the knowledge of relative material costs created the urge for developing a better manufacturing method. The improved machine resulted not from the initiative of an engineer, but from the knowledge of relative material costs and the desire to substitute material in a different form and thus take advantage of the indicated savings.

This is but one example of our experience whereby our competitive position has been materially improved. Another example is in the production of special steel for artillery cartridge cases. Knowledge of the elements of cost at the mill caused us to establish facilities to buy the material in a semi-finished condition and perform some of the special processing operations in our own plant, thus improving our competitive position and overcoming a geographical handicap.

5. Representatives of the purchasing department should participate in:

- a. New product development (for his knowledge of material costs).
- b. Estimating new jobs. Here he can add his superior knowledge of material costs to the common pool of information on which decisions are based.

To summarize:

Purchasing is not a routine—almost clerical job—as many managements apparently believe.

Properly performed the purchasing function can be a creative activity—one which:

1. Builds good will for the company.
2. Assists in the development of new products.
3. Encourages the engineers in the company to develop means of using substitute materials—or the same material in a less costly form, thus contributing effectively to the net profit of the company.

Micrometer Features Cam Lock Device

A new cam lock for Lufkin micrometer calipers has been announced by The Lufkin Rule Company, Saginaw, Michigan. It is easier and faster to operate, and holds the spindle more securely than the old style knurled lock nut. Turning the lever 1/8 turn with a flick of the thumb securely locks or unlocks the spindle.

More for
your money
in
mercury
light...

NEW, INCREASED LIGHT OUTPUT FOR 13 WESTINGHOUSE MERCURY LAMPS

Now—through advanced design and manufacturing techniques—the most widely used Westinghouse Mercury Lamps give you more light when new, more light for life.

Look at the following chart. It shows the new boost in initial light output for just two of the most widely used Westinghouse Mercury Lamps...

Lamp	Initial Lumens	
	Old Rating	New Rating
400-watt E-H1	20,000	21,000
400-watt J-H1	19,000	20,000

And there are similar high increases for eleven other popular Westinghouse Mercury Lamps.

But that's only half the story! For not only do these new, improved

Westinghouse Mercury Lamps give increased light output to start with, they also maintain higher light output throughout their long life. For example...

Lamp	Approximate Lumens at 4000 Hours	
	Old	New
400-watt E-H1	15,000	15,800
400-watt J-H1	14,000	14,700

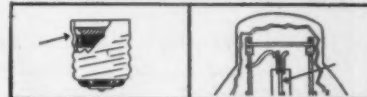
These new Westinghouse Mercury Lamps are absolutely unequalled for long useful life. So today, even more than before, Westinghouse Mercury Lamps are by far your best buy for all high-intensity lighting.

This significant advance in Westinghouse Mercury Lamp performance is further evidence of Westinghouse leadership in mercury lighting—one

more proof that Westinghouse Mercury Lamps give you "more for your money in mercury light."

Westinghouse Guarantees the service life of all its widely used types of quartz mercury lamps. For full details call your Westinghouse Lamp Representative—or write Westinghouse Lamp Div., Dept. P-2, Bloomfield, N. J.

TYPICAL MONEY-SAVING FEATURES OF WESTINGHOUSE MERCURY LAMPS...



Hi-Temp life-time-tight base—non deteriorating bonding material eliminates costly problems of loose bases, cracked bulbs, breakage when lamps are removed from sockets.

Molybdenum Ribbon Seal—just .005" thick—permits easy expansion and contraction of lead-in wires and bulb material. Result: longer lamp life, fewer early failures.

W YOU CAN BE SURE...IF IT'S

Westinghouse

Ask about new Westinghouse WEATHER DUTY (TM) Mercury Lamps!

For More Information Circle No. 382 on Inquiry Card—Page 17

DECEMBER, 1955

303

SPECIFY GENERAL INDUSTRIES

Smooth Power MOTORS

America's Leading Manufacturers Do!

RELY ON GI's quarter of a century of design leadership to produce the best motor for the job.

COUNT ON GI engineering facilities to help you in the development of specific motors for special applications.

DEPEND ON GI production know-how to speed your products down the line profitably, and on time!



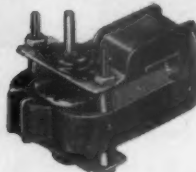
NEW MODEL B
4-pole, 4-coil shaded pole
AC Induction Type



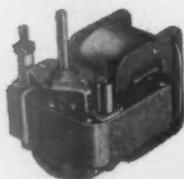
MODEL A
2-pole, shaded pole AC
Induction Type



NEW MODEL E
4-pole, shaded pole AC
Induction Type



MODEL C
2-pole, shaded pole AC
Induction Type



NEW MODEL F
2-pole, shaded pole AC
Induction Type



MODEL D
4-pole, 4-coil, shaded pole
AC Induction Type

Write for complete specifications
and quantity price quotations!



MODEL O
2-pole Capacitor Reversible
Type, AC only (for 6,
12 or 24 volts)

THE GENERAL INDUSTRIES CO.

DEPARTMENT GP • ELYRIA, OHIO

For More Information Circle No. 383 on Inquiry Card—Page 17

Recent Court Decisions

(Continued from page 128)

agreement between White and the warehouse company was void because the universal law provides that warehouse receipts need not be in any particular form, but every warehouse receipt must state whether the warehouseman has an interest or ownership in the stored goods.

This is so because the Warehouse Receipts Act clearly provides that a warehouseman cannot escape liability to the original storer of goods for the full value of goods, which the warehouseman claims he purchased from the storer, unless the sale was made at the time or after the goods were accepted by the warehouseman for storage. In holding void the oral agreement between the warehouse company and White, the court said:

"In the instant case the alleged oral agreement under which defendants (warehouse company) claim their title or interest took place several months prior to the deposit of the merchandise and issuance of the warehouse receipts. Therefore plaintiff (White) was entitled to delivery under the Act notwithstanding the alleged oral agreement to the contrary. Evidence of the oral agreement should not have been considered."

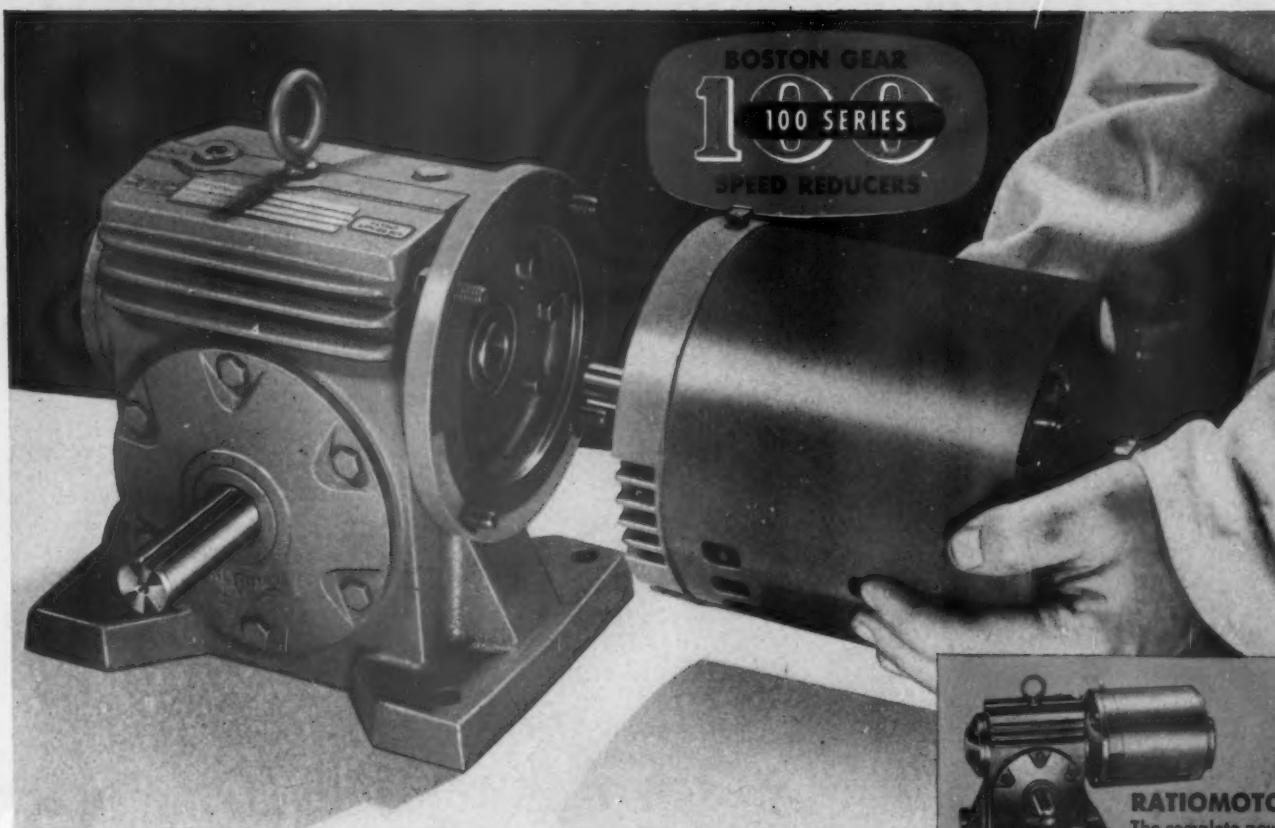
Obligations Must Be Mutual

A great deal of discussion has arisen from time to time over the answer to this question: "If two corporations are owned by the same stockholders, is one corporation liable for payment for merchandise delivered to and used by the other corporation?"

The answer is: The corporation which did not use the materials is not liable for payment because there is no valid consideration or mutual obligation.

A good legal rule is: A contract is valid only if both parties were mutually obligated to perform one or more acts of benefit or detriment to the other. In other words, a contract must have valid consideration, which means that both parties must agree to perform some act or do something for the other party, and the contract must not violate any law. For instance, a contract is void which provides that a seller "will sell" certain merchandise and the contract does not also clearly state that the purchaser "will purchase" the merchandise.

(Please turn to page 308)



New COST-**SAVING** "COMBINATION" for certified efficiency—easy maintenance —and unlimited adaptability

The new **100 SERIES RATIOMOTOR** combines a gear reduction unit and an easily detachable, standard end-mounted motor.

MOTOR CAN BE REMOVED and replaced in a few minutes, without disturbing the gear reduction unit. Saves maintenance time, preserves alignment, permits continued operation with spare motor.

ORIGINAL MOTOR CAN BE CHANGED When conditions require change to a motor of special characteristics (totally enclosed, explosion-proof, etc.) it can easily be attached in place of the original motor.

ANY MODEL NEEDED — FROM STOCK

The **100 SERIES** includes 1064 different *standardized stock* units for an unlimited range of applications . . .

Reducers, for mechanical drives, as well as Ratiomotors and Flanged Reducers. All ratings are *certified* to be actual torque delivered, by Independent Laboratory tests.

A **BOSTON GEAR FIELD ENGINEER** will help you simplify planning, and put your product ahead in design. Your Boston Gear Distributor will arrange a call, or write: Boston Gear Works, 74 Hayward St., Quincy 71, Mass.

GET NEW CATALOG R-56

Lists models for any drive . . . horizontal or vertical—right angle or parallel—single or double reduction. Includes selection charts, engineering data.



1064 DIFFERENT UNITS 108 MODELS — FROM STOCK

Call your **BOSTON Gear**
DISTRIBUTOR

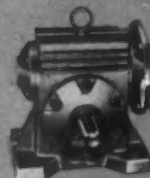


RATIOMOTORS
The complete power package, with motor.

SOLD WITH OR WITHOUT MOTOR

FLANGED REDUCERS

The Ratiomotor gear unit, supplied without motor. You buy and attach any motor you choose.



REDUCERS

For mechanical drives, new **100 SERIES** design saves space and weight. Housings are finned for improved cooling. Fan-cooling optional on larger sizes.

MAXIMUM HORSEPOWER PER DOLLAR

Certified

by Independent Laboratory tests

PATENTS PENDING

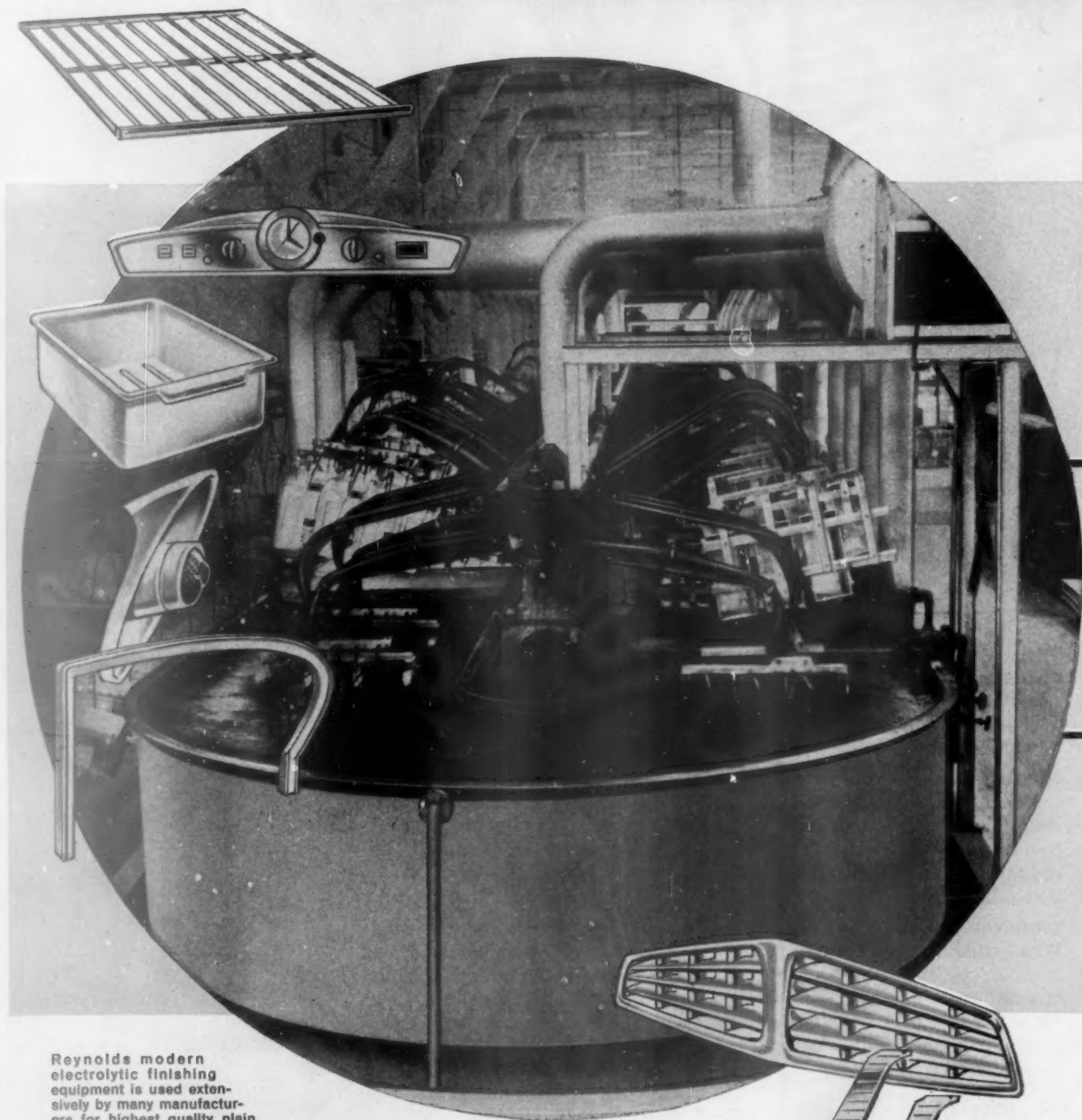
For nearest distributor, look under "GEARS" in the Yellow Section of your Telephone Directory.

For More Information Circle No. 384 on Inquiry Card—Page 17

55-BG-R-17A

for finer "finished" aluminum products

FINISHES



Reynolds modern electrolytic finishing equipment is used extensively by many manufacturers for highest quality plain and color anodizing. Anodizing protects surfaces and color anodizing by Reynolds is currently adding tremendous sales appeal to many items such as refrigerator and range parts; automobile grilles and trim parts, etc. The latest gold, blue and copper colors are currently being produced by Reynolds.

REYNOLDS  **ALUMINUM**

BLANKING • EMBOSSING • STAMPING • DRAWING • RIVETING • FORMING • BRAZING

... greater design freedom, specify

from REYNOLDS

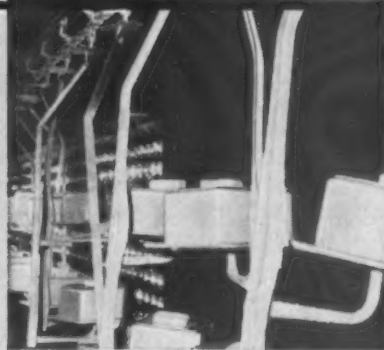
Mechanical • Chemical • Electrolytic • Paint Films



Buffing, here on deep well cookers, is one type of mechanical finish available from Reynolds. Scratch-brushing, satin finishing, highlighting, embossing and other finishes are also available.



Alodine system at Reynolds is adaptable to immersion, spray or brush type finishing. Etching, brightening and other chemical finish treatments are also available at Reynolds.



Reynolds can paint entire parts a solid color, mask and paint or do paint filling in combination with mechanical finishing to supply practically any desired texture or highlighting effect.

Write for your free copy of the 24-page "Catalog of Facilities." Get full details on the tremendous production facilities of Reynolds Aluminum Fabricating Service.

See Reynolds New Program "Frontier" Sundays on NBC-TV.



The aluminum products you are designing now can be finished to meet your requirements by Reynolds Aluminum Fabricating Service — and here's why:

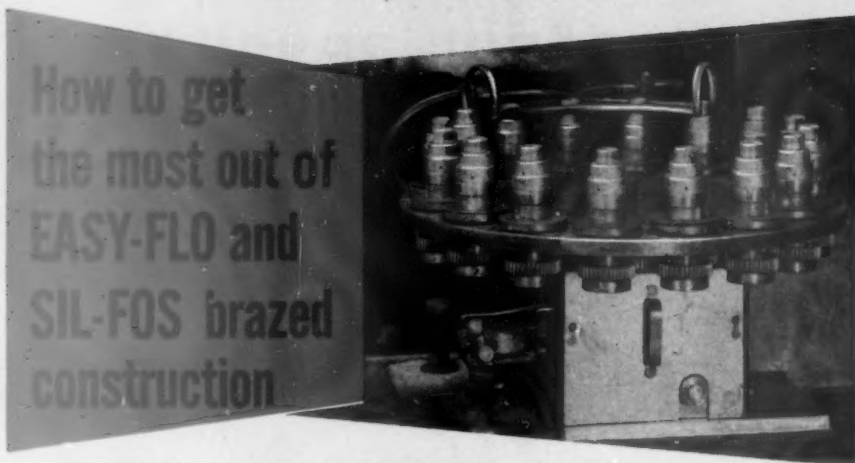
Reynolds existing extensive finishing facilities are currently being augmented by today's latest automatic finishing equipment. This tremendous investment by Reynolds offers you finishing facilities unsurpassed anywhere. It assures you finer finishes on the aluminum products you design. Gives you new flexibility in your design thinking. And — these new expanded facilities are backed up by Reynolds years of technical experience with practically every finishing process and technique applicable to aluminum . . . and by Reynolds famous quality control from mine to finished product.

For the highest quality from start to "finish," let Reynolds fabricate and finish your aluminum parts.

For full details on the many types of mechanical, chemical, electrolytic and paint film finishes that Reynolds offers and on the many other services offered by Reynolds, call the Reynolds office listed under "Aluminum" in your classified telephone directory. Or write Reynolds Aluminum Fabricating Service, 2056 So. Ninth St., Louisville 1, Ky.

FABRICATING SERVICE

ROLL SHAPING • TUBE BENDING • WELDING • FINISHING • IMPACT EXTRUDING



Thousands of metal parts are now made from stampings, screw machine parts and tubing joined with one of the EASY-FLO or SIL-FOS low-temperature silver brazing alloys. That's because this method makes a wide range of parts faster, better and at far less cost than by casting, forging and machining from the solid.

Many manufacturers are getting the full benefit of the speed and economy of EASY-FLO and SIL-FOS brazed construction by using setups that combine *preplacing* the alloy with fast handling and heating of assemblies.



ALLOY FORMS

EASY-FLO and SIL-FOS alloys are available in any of the forms shown below in a range of diameters, gauges and sizes to meet specific replacement requirements.



Such a setup is shown above. It's used to braze a threaded spud into a shell stamping to form an electric plug part. As table rotates, assemblies with EASY-FLO 45 wire ring preplaced as shown, pass at predetermined speed through the induction heating coil at rear. Gearing revolves the assemblies. Operator simply keeps removing finished parts and reloading for an easy output of 250 an hour.

EASY-FLO and SIL-FOS are the key factors

That's because these alloys just naturally produce high-strength, leak-proof, virtually indestructible joints in ferrous, non-ferrous and dissimilar metals with unmatched speed and economy.

Our specially qualified Distributors cover the country. They're ready to give you prompt supply of EASY-FLO and SIL-FOS and experienced help in applying them. Write for the "Distributor List" and contact the nearest one. We'll send along a copy of Bulletin 20 which tells all about the alloys.



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TORONTO, CANADA
MONTREAL, CANADA

Recent Court Decisions

(Continued from page 304)

This is so although both parties intended originally to be obligated.

According to a late leading higher court decision a corporation is not required to pay for materials which its officials did not order or accept, although tickets or receipts acknowledging receipt of such merchandise were signed by officials of the corporation, and the latter corporation is owned by the same persons who own the corporation which used the merchandise. This is so because there is no mutual obligations.

For example, in *Jacobson-Lampkin Paving Company v. McMichael Concrete Company*, 277 Pac. (2d) 122, the testimony showed facts, as follows: The seller, McMichael Concrete Corporation, was engaged in the business of manufacturing and selling ready-mix concrete. The Jacobson-Lampkin Paving Company was engaged in paving streets and later sold and conveyed all of its assets to the Kay Construction Company, which agreed to take over and complete the paving contracts then held by Jacobson-Lampkin Paving Company to pave various streets. The McMichael Concrete Company sold materials for paving these streets and its books showed that the various materials appearing in the invoice were charged to the Jacobson-Lampkin Paving Company. Also, employees of the paving corporation signed tickets admitting delivery of materials by the McMichael Concrete Company for the paving projects.

In subsequent litigation the higher court held the Jacobson-Lampkin Company not liable for payment of the materials used on these paving projects, and said:

"The only issue here involved is as to whether defendant (Jacobson-Lampkin Paving Company) is liable for the material delivered by plaintiffs (McMichael Concrete Company). We do not think the evidence is sufficient to establish liability against this company. The burden of proof was certainly upon plaintiffs (McMichael Paving Company) to show that the paving company had in some manner contracted with them for the purchase of the material in question before it would be entitled to judgment against it. In our opinion plaintiffs have failed to establish that any such contract had ever been entered into."

(Please turn to page 310)

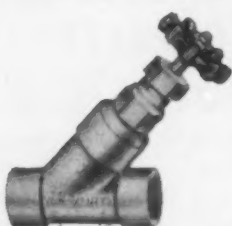
There's no "...or equal" for EASY-FLO and SIL-FOS

For More Information Circle No. 386 on Inquiry Card—Page 17

Now WALWORTH *PVC* VALVES and FITTINGS

give you the greater protection and longer service of all-plastic piping systems!

The new Walworth plastic Valves and Fittings are made of rigid polyvinyl chloride which is non-aging, non-corrosive and non-toxic and has extremely low flammability and high resistance to chemical attack. Walworth PVC products are molded by General American Transportation Corporation. Each product bears the stamp of Walworth's long established engineering skill and reliability — your assurance of safe, trouble-free valves and pipe fittings.



Walworth PVC Y-Globe Valves are designed to regulate the flow of alkalis, acids, inorganic salt solutions and other troublesome fluids commonly found in food, chemical and allied industries. They will give exceptional service at temperatures as high as 150°F

and are designed for use with schedule 80 pipe. Other features of these valves include: (1) Three chevron, Teflon packing rings give you a leakproof seal without binding the stem. (2) No useless threads to accumulate troublesome dirt because no stem threads enter the interior of the body. (3) Snap-on spherical plug with ball-to-cone seating arrangement to assure a tight line-contact seal between disc and seat regardless of any minor inaccuracies in alignment. (4) Full 45° angle of stem with center line of pipe to reduce pressure drop and turbulence. (5) Generously designed flow passage at the valve seat for a more even flow. (6) Back seat design allows repacking when wide open under pressure. (7) Polyethylene bonnet gasket to assure a perfect body-to-bonnet seal.



Walworth PVC Diaphragm Valves come equipped with neoprene discs. Other diaphragms especially suited to your application can be furnished. "R-2" rubber diaphragms are commonly used in systems handling dilute acids and alkalis. "J-1" Teflon diaphragms are recommended for maximum chemical resistance.

Valve design features: (1) No stuffing box or packing to replace. (2) A resilient diaphragm connected to the compressor by a stud assures a leakproof closure on the body weir or valve seat even when slurries or semi-solids are in the line. Diaphragm easily replaced without removing the valve from the line. (3) Streamlined flow area in valve body makes valve self cleaning and allows fluids to flow equally well in either direction. (4) Separation of valve body from the sealed metal bonnet protects fluids from contamination. Fluids contact only the valve body and diaphragm. (5) Completely enclosed metal bonnet protects stem from breakage and distortion.



Walworth PVC Fittings assure uniform thermal expansion of pipe and fitting threads when used on plastic pipe. They eliminate the danger of jammed threads, loose joints and the chance of galvanic corrosion. These screwed pipe fittings are: (1) Designed for use on schedule 80 of plastic

pipe. (2) Walls are of uniform thickness accurately molded. Proportions are skillfully worked out in all sizes and types of fittings. (3) Fittings are chamfered to protect the thread and afford easy entrance of the pipe. Long bands provide reinforcement at the points of severest strain.



This booklet contains all the details about Walworth PVC products that you'll want to know. It describes mechanical and thermal properties, working pressures, sizes and dimensions, application and assembly data. For your free copy write to us. Please use company letterhead.

WALWORTH

valves... pipe fittings... pipe wrenches

60 East 42nd Street, New York 17, N. Y.

WALWORTH COMPANY OF CANADA, LTD.
Toronto • Calgary

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

For More Information Circle No. 387 on Inquiry Card—Page 17

DECEMBER, 1955

309



CHECK your tackle blocks for best service. Worn sheave grooves, bearings and pins are expensive.

LOWER HANDLING COSTS

are often attained by using "the one BEST block" for a specific load. MADESCO Blocks correctly designed and engineered for your specific operation may effect savings YOU can benefit from!

Twenty-five years' experience in designing and making blocks for "a-thousand-and-one" different uses means that MADESCO Blocks help speed hoisting, give trouble-free service, help prolong rope life.

Write—today—for bulletins and consult us about your specific needs.

MADESCO TACKLE BLOCK CO.
EASTON, PA.

MADESCO
BLOCKS

MAE-M593-2-54

For More Information Circle No. 388
on Inquiry Card—Page 17

310

Recent Court Decisions

(Continued from page 308)

This higher court explained that the Jacobson-Lampkin Paving Company was not liable although the same persons who owned the stock in this corporation also owned the stock in the Kay Construction Company which used the materials delivered by the McMichaels Concrete Company to the paving company. In this respect the court said:

"The issue here involved is not as to whether either or both of the corporations might have been held liable for debts existing against the paving company at the time it transferred its assets to the Kay Construction Company. The real issue here involved is as to whether the paving company is liable for material sold and delivered subsequent to the time the Kay Construction Company acquired such assets. As above pointed out plaintiffs (seller) failed to offer any evidence to establish that the paving company contracted for or ordered any of the material in question, but on the contrary the undisputed evidence shows that such material was ordered on behalf of the Kay Construction Company.

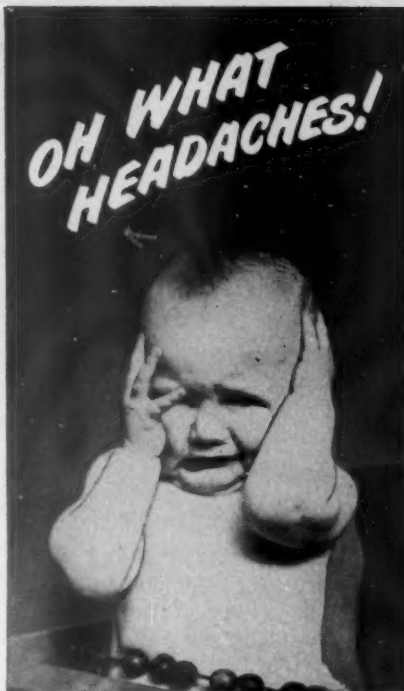
Fuel Oil

(Continued from page 113)

U. S. crude oils are generally low in sulphur; over 90% of them contain less than 1%. Venezuela, by contrast, has over 60% of its fields producing crude oils with over 1% sulphur content, one field having a high crude oil sulphur content of 5.29%, which becomes 6.26% in the residual fuel oil. Mexican crudes also run high in sulphur. If there is a sulphur problem with equipment or processing, knowing the source of the crude oil from which the fuel oil is derived will give a broad indication of the sulphur content.

Carbon Residue in oils determines whether they will burn without smoking, and also whether the burners will foul and need frequent replacement. A limit of 0.15% is placed on No. 1 oil and 0.35% for No. 2 oil, as burners using these grades cannot handle excess carbon residue. No. 5 oil may contain as much as 4% to 8% carbon residue, and No. 6 from 6% to 15%. Excessively high carbon residue can be an indication of poor refinery methods or of contamination.

(Please turn to page 312)



WISH I HAD ORDERED FROM GARRETT

They never let you down on deliveries when you have to keep production going full speed.

You get what you order when you order it . . . from Garrett. No waiting for late shipments. You can't beat Garrett service. No worries about Garrett . . . quality. Every Garrett washer, hose clamp, stamping or assembly is right up to the peak of quality. High quality is assured by Garrett's "statistical quality control" system.

Next time no more headaches for me. I'll order from Garrett. Why don't you do the same when you need . . .

**LOCK WASHERS
FLAT WASHERS
HOSE CLAMPS
STAMPINGS**

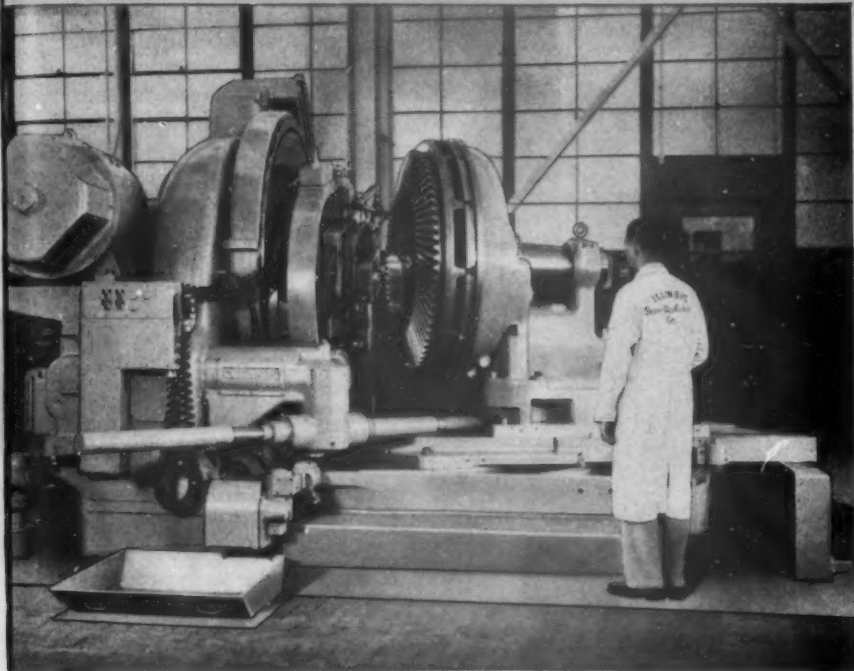
Manufactured by
GEORGE K. GARRETT CO., Inc.
Philadelphia 34, Pa.



For More Information Circle No. 389
on Inquiry Card—Page 17

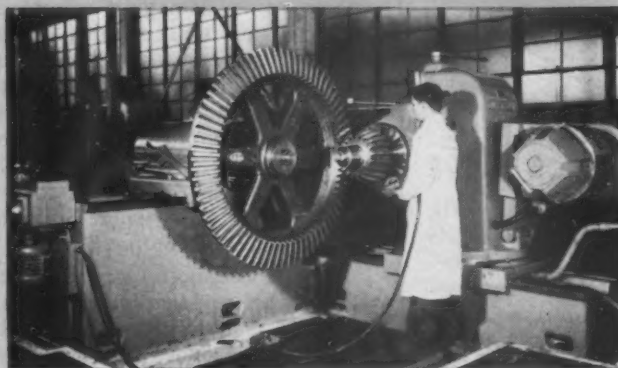
For More Information Circle No. 390
on Inquiry Card—Page 17→

BIG SPIRAL BEVEL ZEROL BEVEL HYPOID GEARS

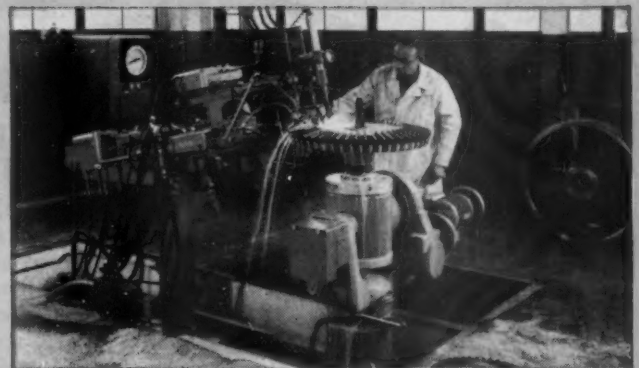


PRECISE GENERATION OF BIG BEVEL GEARS

This new No. 170 Spiral Bevel and Hypoid Gear Generator is the nucleus of the most modern and productive unit of large bevel gear generating machinery in the world. It generates spiral bevel, zerol bevel, and hypoid gears to 72" diameter, 2.875" tooth depth (.75 D.P.), 10" face, and 10" hypoid pinion offset above or below centers. The localized gear tooth bearing, an established necessity for today's heavily loaded gear drives, is precisely controlled to your specifications.




POWER TESTING—This new No. 61 Angular Hypoid Testing machine is the most advanced of its kind. Large spur, helical, herringbone or bevel gears are operated under load at any shaft angle, giving exact inspection of tooth contact under operating conditions. It will efficiently test gears up to 90" diameter and hypoid offsets to 10" above or below centers.



SURFACE HARDENING—This new No. 2 Flame Surface Hardening machine is closely controlled electronically to produce precise, uniformly distortion-free results—it's the all important climax to our large gear production facilities. Spur, helical, bevel and hypoid gears to 120" diameter, .75 D.P., and 18" face are surface hardened in this machine.

Visit our modern plants—see the finest equipped plants in the world—designed to serve you.

Look for this mark  ... the symbol on finer gears

Gears for Every Purpose ... one gear or 10,000 or more

ILLINOIS GEAR & MACHINE COMPANY

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Faultless

TRIPLE GREASE SEALED CASTERS

**ARE NOT AFFECTED BY STEAM, DIRT, WATER OR BRINE
... WILL KEEP YOUR PRODUCTION LINES ROLLING**



1. LEAK-PROOF NEOPRENE RETAINER MOLDED AND VULCANIZED ON UPPER BEARING SWIVEL RACEWAY. PATENT PENDING.

2. THRUST BEARING GREASE RETAINER TIGHTLY FITTED AROUND FORMED, HARDENED RACEWAY. CAN BE EASILY REMOVED FOR CLEANING OR INSPECTION.

3. NEOPRENE RING PERMANENTLY ATTACHED TO METAL WASHER AND PRESS FITTED INTO HUB.

SERIES 900GS CASTER
Cut-away to show grease sealed double ball bearing swivel.

KEEP TRUCKS ROLLING —CUT MAINTENANCE TIME

Here's an industrial caster so efficiently sealed that neither water, dirt, chemicals or high temperatures affect its maneuverability. A permanent film of grease, between the Neoprene vulcanized seal and top-plate, greatly reduces friction—accelerates swiveling—minimizes "down-time" and plant interruptions. Write today for Bulletin 157-3G, no obligation.



Packing house extremes of 0°F-200°F, brine and steam do not affect lubricated bearings of Faultless 900GS Casters.



Freight is loaded faster when permanent Caster lubrication cuts "down-time." No grease can drip, floors are clean and safe. More loads can be moved by one man.

**FAULTLESS
SOLVES
THE TOUGH
JOBS**

FAULTLESS CASTER CORPORATION
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For More Information Circle No. 391 on Inquiry Card—Page 17

Fuel Oil

(Continued from page 312)

Water and Sediment are generally absent from No. 1 and 2 oils, but the cost of eliminating them entirely from No. 4, 5, and 6 oils is prohibitive. A limit of 1% by volume is allowable in No. 5 oil, and 2% in No. 6. Excessive water and sediment can plug screens and burners, leading to complete stoppage of combustion in extreme cases, or to erratic combustion, splitting or flashback flames, and acute erosion of burner tips. Furthermore, it leads to frequent need to clean fuel tanks.

Ash in oils comes principally from the natural salts present in the crude oil and from the chemicals used in refining operations. It may also come from scale or dust picked up from containers and pipe lines because of improper handling. Nos. 1 and 2 oils should be free from ash; Nos. 4 and 5 may contain 0.10% maximum, by weight. No limit is specified for No. 6 oil. Excessive ash causes deterioration of refractory materials in the combustion chambers of furnaces, and abrasion to pumps, valves, and control equipment.

Sludge is the one bad property for which purchasing department policies might be blamed. Sludging occurs in storage tanks through oxidation of the hydrocarbons. It has the same damaging effects as bottom water and sediment. The tendency to sludge can be aggravated by mixing oils of different characters. Deliveries from two different sources going into the same tank can cause trouble. To avoid this, the purchaser should always ascertain that oils from different consignments are compatible.

Fuel oils are sold at decreasing prices as the grade numbers mount. Therefore, superficially, it would seem to be proper policy to use the highest numbered grade that the equipment and processes of a plant will allow. But this does not always follow. The permutations and combinations of the hydrocarbon groups that enter into the formation of fuel oil, and the minute impurities, can add such an infinite variety of properties that price does not begin to tell the whole story. For a given purpose, price and properties, or price and usefulness, may have no direct relationship. Enlightened procurement will evaluate these variables before deciding on the oil to buy and the source from which to buy.

ROECLAD PORTABLE POWER CABLES

TYPE G ROECLAD CABLE
— with ground wires —
for service to 5000 volts.

TYPE W ROECLAD CABLE
— without ground wires
— for service to 2500
volts.

TYPE SH-A, B, C or D ROECLAD CABLE — shielded,
with or without ground
wires — for voltages
above 2500 — made in
four different applica-
tions of shielding and
ground wires.

YOU WANT

- **RUGGEDNESS — FOR MAXIMUM LIFE**
IN TRANSMITTING POWER TO MOBILE
EQUIPMENT UNDER TOUGHEST CONDITIONS;
- **CABLES THAT ARE TAILOR-MADE**
FOR YOUR OWN PARTICULAR REQUIREMENTS;
IN SHORT,

YOU WANT

ROEBLING

Subsidiary of The Colorado Fuel and Iron Corporation

JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J. BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 6325 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 6340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, 19 RECTOR ST., NEW YORK 6, N. Y.



For More Information Circle No. 392 on Inquiry Card—Page 17

DECEMBER, 1955

313



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involving

High Pressures
High Strength
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Durability
Misalignment
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and
Resistance to
Vibration
Shock
High
Temperature
Abrasion
Wear
Corrosion
Oil & Solvents

Every length of ACME'S varied line of RUBBER HOSE is specially engineered to meet the requirements of the application for which it is recommended. It is made by hose specialists in a plant devoted solely to hose manufacture for 53 years. What are your needs? Chances are we have it readily available in stock. If not, we'll make it for you.

PUT THE JOB
UP TO

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HOSE SPECIALISTS
ACME RUBBER MANUFACTURING CO.
1437 EAST STATE STREET TRENTON, N. J.

Federal Supply Service Adopts Commercial Techniques

(Continued from page 92)

programs, unimpeded, to satisfy the interregional needs of their customer agencies, military and civilian alike.

Greater Specialization

In the National Buying Division itself, organization changes become more apparent. There is to be a greater degree of specialization in the field of commodities. The general headings may be broader, but the attention of individuals will be concentrated into a narrow range. This will permit the beginning of a type of study that makes for better buying—the day-to-day study of markets, of technological advances in products, of information which may be of little general value to the entire organization but which can affect a given commodity or item.

This specialization will have beneficial effects all along the line. The material contracted for will be more suitable and more modern. Suppliers, sensing the attention given to details within each commodity field, will be more alert and competitive. Customer agencies will become more receptive because of the better service and quality.

As these activities unfold, the other features of the recommendations come into play. These are concerned largely with the technical aspects of handling materials in the distribution centers after they have been received, and methods of delivery and accounting.

For example, departmentalization of stocks within the warehousing space is stressed, to conserve space and labor and increase efficiency. A corollary to this is the problem, now under study, of prepacking items into needed issue units. This is not entirely new to the present system, but attention is being centered on it and more effort and study will be given to determining the correct measure for any given item in terms of the needs of federal agencies.

With more modern buying techniques, more up to date distribution methods, and simplified paperwork, FSS will be able to meet its rising volume of business with reduced proportionate costs. Use of a standard, simplified order invoice form by the agencies, and the presentation of consolidated monthly billings, will both contribute to keep-

(Please turn to page 316)

For More Information Circle No. 393 on Inquiry Card—Page 17



There's Never Any Question About a Bethlehem Drop Forging

You can be sure of top quality in a drop forging made by Bethlehem.

You can be sure that the steel is right, that the dies are right. You can be sure that the forging work is done conscientiously by men long skilled in their trade.

Bethlehem shops furnish an almost endless variety of designs for the oil, mining, aviation, automotive, elec-

trical, and other industries. Both quality and variety are made possible by excellent facilities, which include modern die-sinking shops, steam and board drop hammers to 8,000 lb, mechanical presses to 3,000 tons, upsetters to 9 in., and full heat-treating equipment.

When you are figuring your next requirements for closed-die forgings,

we'd appreciate the chance to talk with you. We offer excellent service, a first-class product, and competitive prices and deliveries.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL





"POURING A CHILL"

to test Quality of
Gray Iron at Forest City
Foundries

● Are you getting the quality of gray iron you want in your castings? You can depend on Forest City Foundries to meet your exact requirements. Among the many tests and controls that assure the high quality of Forest City castings are the two illustrated here.

Frequent pourings of small castings known as "chill wafers", as shown above, are made to determine beyond question the quality of iron as it comes from the cupola. Each wafer then is measured for depth of white iron, and control is accomplished by variation of the amount of inoculant. The chart below shows the type of record that is kept, right at the cupola.

CHILL CONTROL SHEET						
Date	8/12/53	Cupola	No. 2	Taken by	R.H.E.	
Time	Temperature	Silicon Additions (Feeder Setting)	Chill 1/32"	Hardness Brinell Bar	Chemical Carbon	Analysis Silicon
7:15	2800	40-50	7	187	3.45	2.25
7:30	2830	40-50	11	207	3.43	2.05
7:45	2750	60-60	9			
8:00	2740	60-60	8	192		
8:15	2740	55-55	8			
8:30	2750	50-50	10	202	3.34	2.15
8:45	2750	50-50	10			
9:00	2750	50-50	12	192		



Control of chemical composition is important to assure uniformity of casting hardness and strength, but modern foundries must also control the structure of the iron as well. Here the metallurgist is examining a polished sample of iron to be sure that the structure conforms to the desired pearlite iron specification. The spectrophotometer at the technician's left is used for many accurate and rapid analyses of alloys every day.

To see how you can profit by having your gray iron castings made by Forest City Foundries, send us sketches, blue prints or samples for quotations.

The FOREST CITY FOUNDRIES Company

2800 WEST 27TH STREET • CLEVELAND 13, OHIO
TELEPHONE TOWER 1-5040

Federal Supply Service Adopts Commercial Techniques

(Continued from page 314)

ing the paperwork between agency customer and FSS at the absolute minimum required for good accountability.

It has been my pleasure to have participated in the Federal Supply activity for a decade and a half. Like many others who have been close to the job during turbulent times, I have come to realize that because this is a dynamic activity we must experiment constantly for the economical answers to our vast and complex problems. I am sure that our current program, with its emphasis on modern commercial methods for contracting and distributing government supplies, is the answer to today's challenge.

Push-Button Purchasing

(Continued from page 84)

that only the routine steps in the purchasing cycle have been mechanized. Thinking is still required, and all thinking is still done by people, not machines. The timing of some of the thinking has been changed.

The results of the mechanization are undoubtedly more accurate, and definitely they are obtained much faster than under the old, manual methods. More important, your thinking people—your buyers—are relieved of the time-consuming, routine repetitive work that has bogged them down in the past. This develops for them the time they need to do a top-flight purchasing job. They can now devote practically all their working hours (except for the small amount of time necessary to handle the unusual cases which do not fit into the mechanized system) to doing all of the things that go to make up a good purchasing-for-profit program.

If you are still convinced that mechanized purchasing "can't be done", it might be well for you to talk with the comptroller of a company near you that uses punched card accounting. The chances are that a few years ago he too was saying that "it can't be done". Now that he has been using punched card machines for many of his accounting operations, he wouldn't go back to the old, slow, obsolete methods he formerly used, if he had a chance to do so.

under
the boiler
in a steam
plant...



it's constant-costs that count!

Be Thrifty! Expensive boiler installations designed to burn fuels with limited futures is doubtful wisdom. The sensible alternative is to *bank on Bituminous!* Plotting your costs over the long run will prove efficiency and lowest cost in most cases. For, Bituminous reserves are unlimited—they're nearest to most manufacturers—coal technology improves burning equipment, efficiency and cost year by year.

Let our Coal Technical Service plot a constant-low-cost Bituminous coal for your needs. Ask our man!

COAL TRAFFIC DEPARTMENT, BALTIMORE & OHIO RAILROAD
Baltimore 1, Maryland—Phone: LExington 9-0400



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BITUMINOUS COALS FOR EVERY PURPOSE



Ratchet
Lowering Jacks—
5 to 15 tons



Ball Bearing
Journal Jacks—
15 to 50 tons



Ratchet Trip Jacks—
High and Low Types—
15-ton Capacity



"Two Speed" and "Hi-Speed"
Hydraulic Jacks—
3 to 50 tons

There is a
BUDA JACK
for every lifting job
up to 75 tons

80 models, 9 types—Buda is the complete jack line! Whatever the requirements for maintenance, production, tooling, shipping or assembly departments, you can be sure there's a hydraulic or mechanical field and service-tested Buda Jack just right for the job. Built for easy operation even when lifting at rated capacity—designed for quick and simple maintenance.

Your Buda industrial distributor will gladly furnish specific model and capacity data. Ask him for Buda catalog

No. 1515-B or write to
Buda Division, Harvey, Ill.



ALLIS-CHALMERS



Ratchet Trip Jacks—
High and Low Types—
15-ton Capacity



Ball Bearing
Journal Jacks—
15 to 50 tons



Ratchet
Lowering Jacks—
5 to 15 tons



Screw Jacks—
10 to 24 tons



Standard
Speed Jacks—
15 to 75 tons

For More Information Circle No. 397 on Inquiry Card—Page 17

Automotive Vehicles— Buy or Lease?

(Continued from page 120)

on combinations of time and mileage. They may be subject to adjustment by provisions relating to changes in the price of gasoline. If various rates are available, select the one which most nearly meets the lessee's actual time and mileage requirements to produce the lowest total rental charges.

DURATION OF THE AGREEMENT is of prime importance. Clauses for absolute termination or automatic renewal should be carefully drawn.

RIGHTS OF TERMINATION, for both parties, and their respective liabilities upon termination, should be clearly established. Provisions may vary if termination takes place within one year, after a longer period, or within certain mileage limitations.

PURCHASE OF VEHICLES. Many leases include a provision for purchase of the vehicle by the lessee, either prior to or at the end of the lease term, at lessee's option. The lease should state the initial valuation of the vehicle, and a set rate of depreciation from this value—say, 2% per month beginning on the date of vehicle delivery. This will establish an agreed upon value at the time the lessee may choose to exercise his option.

Acceptances That Create Controls

(Continued from page 97)

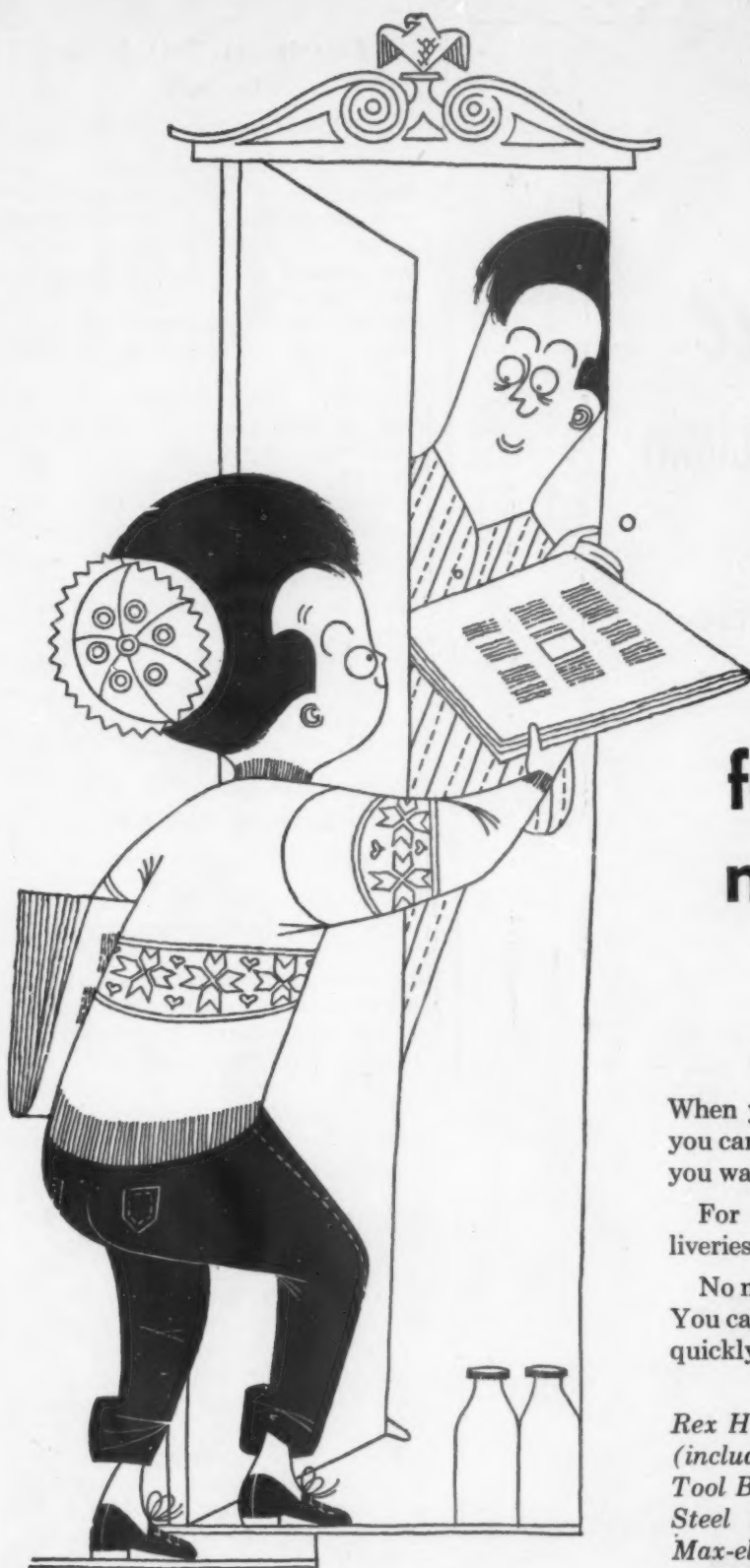
effect such a change nor does it cause a breach, giving a right of action or rescission to the other party."

A summary of the effect of modifications of an offer and the extent they create binding contracts and the extent to which such acceptances will not be counteroffers, made fifty years ago by a West Virginia court, has become an authority.

"First, a request for a change or modification of a proposed contract made before an acceptance thereof, amounts to a rejection of it.

"Second, a mere inquiry as to whether the proposer will alter or modify its terms, made before acceptance or rejection, does not amount to a rejection, and if the offer be not withdrawn before an acceptance, made within a reasonable time, the offer becomes a binding contract.

(Please turn to page 320)



for dependable
nearby delivery

- call **CRUCIBLE**

When you order special purpose steels from Crucible, you can be *sure* they'll be *where* you want them — *when* you want them.

For all Crucible warehouse stocks are large — deliveries prompt and reliable.

No need for you to maintain large, costly inventories. You can safely keep minimum inventories on hand, and quickly replenish them from Crucible warehouse stocks.

Stocks maintained of:

Rex High Speed Steel . . . ALL grades of Tool Steel (including Die Casting and Plastic Die Steel, Drill Rod, Tool Bits, and Hollow Tool Steel Bars) . . . Stainless Steel (Sheets, Bars, Wire, Billets, Electrodes) . . . Max-el . . . AISI Alloy, Onyx Spring, Hollow Drill Steel and other special purpose steels.

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 For Any Job!

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No matter what your requirements are for Sling Chains, you're sure to find what you need in Campbell's complete line—Cam-Alloy, High Test Steel, or Wrought Iron. And with each Sling Chain you'll enjoy the protection of Campbell's "Guarantee and Certificate of Test."

Every Campbell Sling (including attachments) is proof-tested at the factory to a load in excess of the working load limit and carefully inspected, link-by-link, before shipment.



An identification ring is attached to the master coupling of each Sling Chain with grade, type, reach and register number indicated.

Get complete information on the wide variety of Campbell Sling Chains. Write for your copy of the new Campbell Sling Chain Catalog. It contains specifications, working load limits, and helpful suggestions for use in ordering Campbell Sling Chains.



CAMPBELL CHAIN

Company

YORK, PA.

West Burlington, Iowa • Portland, Oregon • Sacramento, Calif.

Maker of the famous Lug-Reinforced Tire Chains



For More Information Circle No. 399 on Inquiry Card—Page 17

Acceptances That Create Controls

(Continued from page 318)

"Third, a request, suggestion or proposal of alteration or modification, made after an unconditional acceptance, and not assented to by the opposite party, does not affect the contract put in force and effect by the acceptance, nor amount to a breach thereof, giving a right of rescission.

"Fourth, an acceptance of a formal and carefully prepared option within the time by it allowed and according to its terms, although accompanied by a request for a departure from its terms, as to the time or place of performance, is an unconditional acceptance and converts the option into an executory contract of sale, provided the request be not so worded as to limit or qualify the acceptance."

Purchasing For A Company Cafeteria

(Continued from page 81)

the vendor is given the order number at the time the order is placed. Later, he will be given the confirming order at the same time that the other copies are distributed to the various departments concerned.

Dairy products, bread, etc., are covered by one order covering the full month, since we cannot determine beforehand the exact amount of each item that will be needed. Upon receipt of the monthly statement, which is checked against the daily receiving record, the order is completed in detail and the copies distributed. Invoices are approved by the cafeteria manager as they are received and, after attaching a receiving ticket, are forwarded to the accounting department for payment.

While our operations at the White Plains headquarters, serving only some 150 meals a day, with approximately the same number of coffee breaks, are small compared with those of some other companies, but the purchasing policies and problems involved are representative of those in any industrial feeding operation. In both the large and small cafeteria, the purchasing department is faced with the challenge of giving the utmost in food satisfaction to its captive customers, in a comfortable and attractive setting, at reasonable prices, and within fixed budget limitations.

Wherever there's wood...



the new *Lamson* "W" BOLTS will set easier and Hold Better



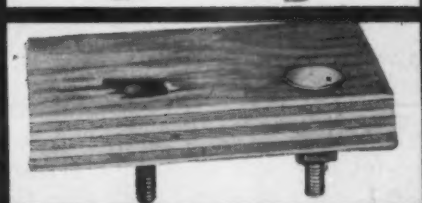
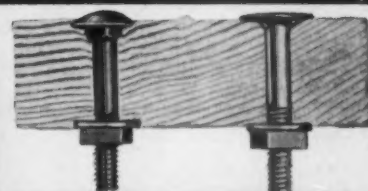
This latest development of Lamson & Sessions is a flat head bolt of mild carbon steel . . . designed especially for fastening wood parts. The Lamson "W" Bolt "sets" easily without hammering, without crushing or splintering the wood fibre, and at less cost than Carriage Bolts.

The two sharp angle fins cut neatly into the wood and the large head draws up flush and square without imbedding thus permitting higher torques and stronger joints, especially in soft woods.

Get the full "W" Bolt story today on how to make wood assemblies look better, hold longer and at less cost than with any other type of wood bolting.

FLUSH FIT . . . NO IMBEDDING. The large diameter head with slight countersink prevents imbedding . . . the fins prevent rotation. Note photographic comparison to Carriage Bolt.

NO CRUSHING OR SPLINTERING. This feature prevents admission of moisture and resulting rot. The photo shows "W" Bolt and Carriage Bolt drawn up with equal torque.



HIGH-STRENGTH—Tests prove that the head and shank of the "W" Bolts are as strong as Carriage Bolts in every respect.

*Lamson
&
Sessions*

The **LAMSON & SESSIONS Co.**

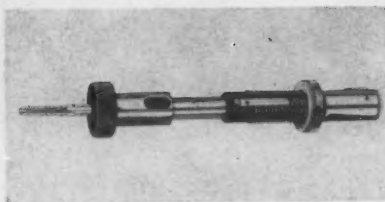
1971 West 85th St. • Cleveland 2, Ohio

CLEVELAND AND KENT, OHIO • BIRMINGHAM • CHICAGO



Tap Holders Eliminate Need for Lead Screws

The "JT" line of lock and eject collet-type compression and tension tap holders has been announced by Scully-Jones & Co., 1901 S. Rockwell, Chicago 8, Ill. Designed for use on multiple spindle machines, they compensate for variations between the feed of the spindle and



the lead of the tap. The holders eliminate lead screws on many

operations. A spring acts as a cushion to prevent damage when the spindle is reversed. The lock and eject chuck provide the collet action for accurate tapping. Tool changing is accomplished by turning the threaded nut to seat and unseating the chuck. The pilot nose on the shank speeds insertion and lock and eject tap chucks come in a range of sizes.

BUYER'S & SELLER'S MART

Contract Work

Equipment For Sale

Employment and Business Opportunities

RATES

Undisplayed (set solid)	90¢ line
Positions Wanted	45¢ line
Displayed	\$8.50 inch

REQUIREMENTS

Undisplayed (want-ad style), minimum charge 4 lines, prepaid. Figure forty-four letter spaces (five average words) to a line. Add one line for box number address; replies forwarded without charge.

Discount of 10% for twelve consecutive displayed insertions. Forms close 15th of month preceding date of publication.

Send orders to: CLASSIFIED DEPARTMENT

PURCHASING

205 East 42nd Street, New York 17, New York

POSITIONS WANTED

Purchasing Agent, Assistant, 27, B.B.A. 3 years Manufacturing Experience in Packaging, Printing, Paper, Paperboard, Adhesives, Die Cutting, Mounting, Finishing, Maintenance, Office Equipment and Supplies, Inventory Control, Production Control and Systems. Currently employed. Seek Increased Opportunity. Write Box 1467, Purchasing, 205 East 42nd St., New York 17, N.Y.

Purchasing Agent, Accounting and Cost Control background, accustomed to working at executive level in textile industry, whose employer is moving to New England, desires to remain in Middle West or Mid-Atlantic States. Can produce results in any cost minded manufacturing organization. Write Box 1468, Purchasing, 205 East 42nd St., New York 17, N.Y.

WANTED ABRASIVES—

Sanding Belts, Rolls, Sheets, Snap Gauges, etc.
For most cash and a quick deal
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K & K SALES

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PHOTOSTATS

Matte		Glossy	
8 1/2" x 11"	.20	8 1/2" x 11"	.30
11" x 14"	.30	11" x 14"	.60
14" x 18"	.40	14" x 18"	.80
18" x 24"	.80	18" x 24"	1.80

Prints made back to back. Work returned same day as received. Free samples on request.

Standard Repro. Co., 135 West 22nd St., New York 11, N.Y.

FOR SALE: 2 used units, in excellent condition, Model 2-C.W. Metco Wet Collectors, Manufactured by Schmieg Industries, Inc. Complete with built-in 2000 C.F.M. blower, 3HP-220/3/60 Motor, and push-button starting switch. Detailed drawing available on request. Reply to

Price Brothers Company
1932 East Monument Avenue,
Dayton 1, Ohio
Purchasing Department.



Save up to \$500
a year per truck

Write to
PEACOCK CORP.
WESTFIELD, N. J.

Available 100 Gear Reducing Motors. Totally enclosed BB 1725 RPM Continuous Speed 216:1 ratio with 8 RPM Output Speed at 138 inch pounds torque. 220 VAC 60 cycle 3 Phase. Bodine Electric Catalog No. B4809EZ-216J Bodine Type NPP-33RJ. Motors new and unused. Contact Industrial Nucleonics Corp. 1205 Chesapeake Ave., Columbus 12, Ohio Attn: J.D. Spillers, P.A.

DIRECTOR OF PURCHASES

We are seeking a Director of Purchases of outstanding ability and proven accomplishment. Position specification includes: responsibility for planning, organizing and directing a modern purchasing program for a well-established and manufacturing firm. Successful applicant will have been engaged for the past 5 years in a position of comparable responsibility. His most recent experience will have been as director, or next in responsibility to the director, of all purchasing for a medium to large size firm and he has reached that position by satisfactory, progressive advancement. His work record should show at least six years of such progressive advancement under one employer. He will possess a strong background in chemical, pharmaceutical or nutritions industries. His record will indicate his successful use of accepted techniques of forecasting, planning and control. He will have created, or had experience with, modern equipment aids to purchasing management. He will be an outstanding administrator. He will have the highest order of ethics and his integrity will be unquestionable. He will be in his thirties or early forties.

Salary will be commensurate with ability. All replies treated confidentially. No inquiries will be made without permission. Send complete details of background, education and employment history, and include a brief statement in your own words covering your particular achievement in your field that you prize most. Write Box 1466, Purchasing, 205 East 42nd St., New York 1, N.Y.

Just a minute—

*Please don't get us wrong . . .
we like quantity business, too*

Just the other day an engineer told us: "I'd have asked you to quote on this order if I'd only realized you handled quantity production. But, somehow, from your ads, I got the impression that you specialized in custom-built transformers in very small quantities only."

"Whoa!" we shouted. "Sure we specialize in custom-built transformers, but we can make 'em custom built or standard in whatever quantity you need. And we can do it quickly without sacrificing precious quality control."

Maybe the fact that we can handle large quantities will help you. Why not write and ask for more information.

CALEDONIA

ELECTRONICS AND TRANSFORMER CORPORATION

Dept. P-12, Caledonia, N. Y.

For More Information Circle No. 401 on Inquiry Card—Page 17

FEDERAL SHORT RUN STAMPINGS COST LESS



Federal's "secret" recipe for Cutting Costs

- Large, modern plant specializing in Short-Run Stampings.
- A vast "Library" of special Federal dies—to reduce your costs.
- Well Equipped . . . row after row of the latest, most modern, high speed precision machines.
- These are but a few of Federal's plus values—so valuable in cutting costs, and increasing speed and accuracy.

KNOW HOW
30 years of Short Run Stamping Experience
Engineering Skill
Creative Ingenuity

Send for Catalog 201 . . . Costs and materials are graphically illustrated. Tells where and how you can save money for your plant by using Federal Short Run Stampings.

Federal TOOL AND MANUFACTURING CO.
3613 ALABAMA AVE. • MINNEAPOLIS 16, MINN.
QUALITY STAMPINGS IN SMALL QUANTITIES

For More Information Circle No. 402 on Inquiry Card—Page 17

DECEMBER, 1955

SOUTHERN

delivers your screws
Quickly . . .



In Loss-Proof Indestructible Steel Containers



One of the first problems Southern Screw solved was loss to customers from prevailing methods of fastener shipment. Our proven method insures you full measure in packing, no loss in shipping, easy, safe storage after delivery.

A Billion Screws at Your Service
—From four warehouses

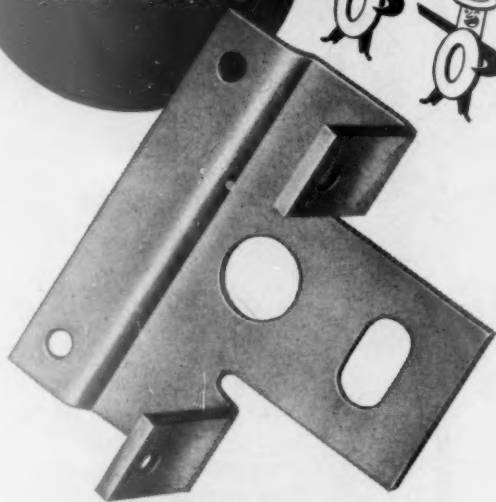
Wood Screws • Stove Bolts • Machine Screws
A & B Tapping Screws • Roll Thread Carriage Bolts
Wood Drive Screws • Dowel Screws • Hanger Bolts

Write for free samples stock list. Box 1360-P-1



WAREHOUSES: NEW YORK • CHICAGO • LOS ANGELES • DALLAS
For More Information Circle No. 403 on Inquiry Card—Page 17

**YOU SAVE
TWO WAYS**



with
**FREEWAY
STAMPINGS**

You cut costs twice... when you specify Freeway stampings. Because first... they're priced low, thanks to patented dies and mass production presses. Second... they consistently "meet the specs", to minimize assembly time in your own shop. Let us prove this to you... with a quotation on your next order.

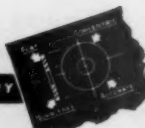


Regardless of the metal, quantity, size or shape... Freeway washers are made better and cost less. They're flat, burr-free, concentric. They fit fast... and right! Use coupon below.



Freeway ball bearings install easily, permanently... thanks to a patented outer race that enables them to be snapped quickly, firmly into position. And they cost so little! Descriptive literature upon request.

Freeway
WASHER & STAMPING COMPANY



P. O. Box 1756, Cleveland 5, Ohio
Gentlemen: Please send us more facts about
() Stampings, () Washers, () Bearings.

Company.....
Street.....
City..... State.....
Signature.....

F

For More Information Circle No. 404 on Inquiry Card—Page 17
324



PHALO
has the Current Answers!



POWER SUPPLY CORDS

Custom or standard, you can put complete confidence in PHALO'S ability to produce exactly the cord required.



POWER SUPPLY CABLES

Phalo enjoys an industry-wide reputation for *engineering* power, control and communication cable requirements.



APPLIANCE WIRING

Phalo wires many of America's leading appliances.

PHALO — Set up to deliver your insulated wire, cable, cord set, molded plug or strain relief requirements.

Send for the new Phalo catalog

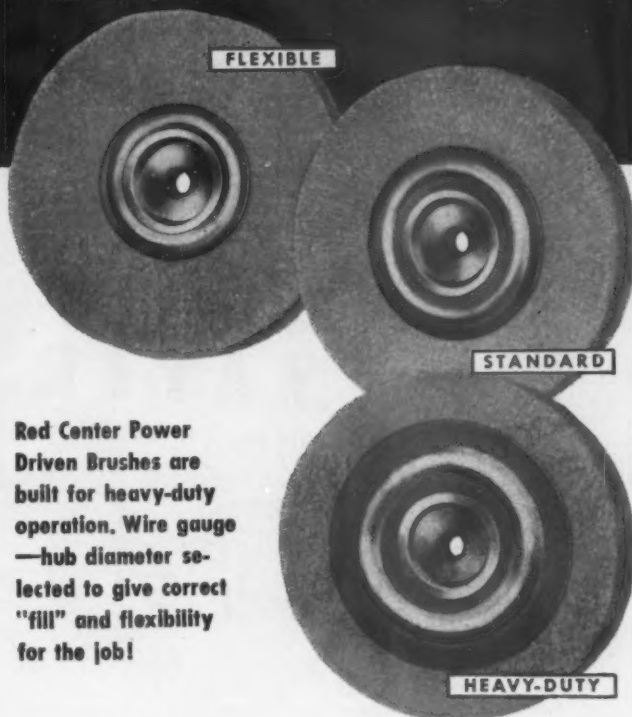


PHALO
PLASTICS CORPORATION

25-3 FOSTER STREET
WORCESTER, MASS.

For More Information Circle No. 405 on Inquiry Card—Page 17
PURCHASING

New Pittsburgh Red Center construction assures faster, better, easier brushing!



Red Center Power Driven Brushes are built for heavy-duty operation. Wire gauge—hub diameter selected to give correct "fill" and flexibility for the job!

Here's how Red Center Brushes work

Even distribution of wire is made around the hub. Naturally the hub size determines amount of wire used. The larger the diameter the more wire used and more rigidity obtained. Three diameter sizes: Flexible (Long Trim), Standard (Medium Trim), Heavy-Duty (Short Trim), all built with gauge wire you specify.

What does Red Center mean to you

Pittsburgh Red Center means precision brushing made by uniform "fill" of a specific gauge, quality wire—mounted in a specially designed hub to give exact brushing surface and strength required. With all these features you're assured of longer brush life, faster cutting, finer finishing.

GET THE FACTS: for information regarding your specific brushing problems, write: PITTSBURGH PLATE GLASS CO., *Brush Div.*, Dept. L-12, 3221 Frederick Ave., Baltimore 29, Maryland.

PITTSBURGH



Power Driven

BRUSHES

BRUSHES • PAINTS • GLASS • CHEMICALS • PLASTICS • FIBER GLASS
PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED
For More Information Circle No. 406 on Inquiry Card—Page 17
DECEMBER, 1955

Be Better Satisfied

Buy Borroughs!

From coast to coast, Borroughs Products are answering the needs of business most economically and efficiently. Shown here are 3 of Borroughs outstanding values. Send for the Borroughs Metal Office Furniture Catalog today. It will come in mighty handy.



WRAP RACKS

Rigid steel construction welded for added strength. Coats hang straight—hats rest on rods and not on dusty shelves. Available in 3 standard sizes to handle 6, 12, 24 coats and hats. Double-face units are also obtainable.

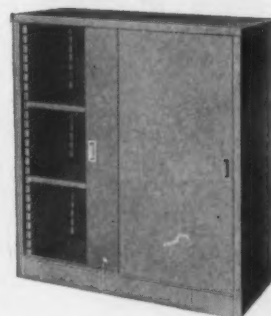
SLIDING SHELVES adjustable without bolting



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These practical and efficient units can also be used for storage cabinets. Available in 4 heights—29", 42", 78", 84"—2 depths, 12" and 18". All units 38 1/4" wide outside. Quick adjustability of shelves. No wasted space. You simply adjust shelves to meet your needs.

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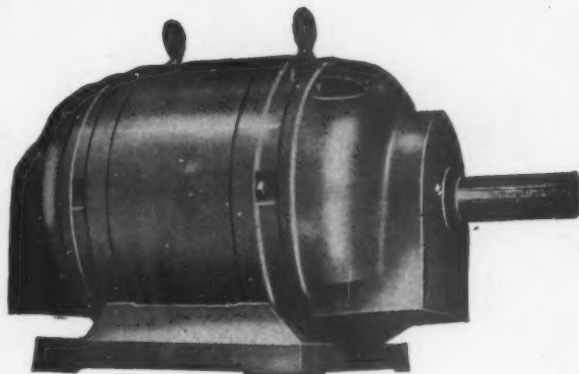
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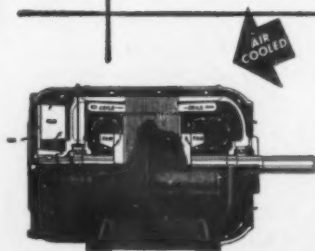
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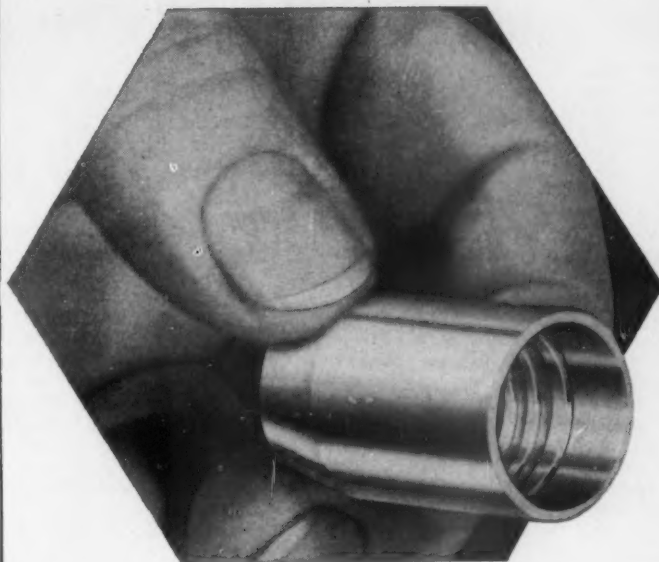
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DECEMBER, 1955

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speeds for
this aluminum part



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letters

SCRAP AND SURPLUS

I long since stopped writing you regarding the many fine features appearing in your magazine. There are far too many of them. I cannot, however, resist the urge to commend you on H. R. Jenisch's article "Getting the Best Return on Scrap and Surplus" (August 1955 issue, p. 109). It is concise and covers the subject adequately. My experience indicates that the profit possibilities inherent in this activity are not yet fully recognized by a large proportion of the industrial concerns with which I have had dealings in recent years. I hope, therefore, that this article receives the attention it deserves on the part of your readers.

Julian G. Davies
Exec. Secretary-Treasurer
Canadian Assn. of Pur. Agts.
Toronto, Canada

USED AS TEXTBOOK

There are four articles in your August 1955 issue of PURCHASING that this headquarters would like to use for the promotion of better management of our Command Procurement Program. It would be greatly appreciated if you would grant us permission to reproduce them for this purpose.

J. F. Scanlan, Lt. Col., USAF
Dep. Chief, Supply Div.
Directorate of Materiel
Hdq. Strategic Air Command
Offutt Air Force Base
Omaha, Neb.

IRON HORSE ENSHRINED

Thank you for that excellent news item about our steam locomotive project, which you carried in the August issue (p. 28).

The Chicago, Milwaukee, St. Paul & Pacific R.R. has contributed a monster steam locomotive weighing (with tender fully loaded) 412 tons, representing the last word in steam locomotive construction prior to the advent of the diesel locomotive.

We will install this in one of our Milwaukee parks in the dead of winter when the streets are frozen solid. There is a great deal of interest in the project.

The exhibit will be enclosed in a protective fence and will be suitably marked

with a bronze plaque giving salient information. Inspection tours will be arranged for the children, and adults, on Saturdays, Sundays, and holidays, under the supervision of guards to prevent accidents and pilferage. The local chapter of the Railway Historical Society has offered to maintain this locomotive for an indefinite period, so that it will always be presentable.

Jos. W. Nicholson
City Pur. Agt.
Milwaukee, Wis.

• Meanwhile, another municipality is showing interest in acquiring transportation equipment of a vanishing era, but for a more utilitarian purpose. The Seattle Park Department is considering the purchase of some of San Francisco's famous cable cars, now being abandoned in favor of more modern equipment, to install a line to carry passengers from an upper park level to beach and picnic areas. San Francisco's City P.A. advises that he has a complete unit for sale—cars, 300 h.p. motor, cable winder, reduction gear, and other accessories. No high pressure salesman, however, he warns that moving the ponderous machinery to Seattle might prove to be a "tremendous and costly operation." He advises the prospective customer to inspect the equipment and count the cost before coming to a decision. Maybe, like so many other loyal San Franciscans, he just hates to see the picturesque cable car system moved away from the city with which it has for so many years been identified.—Ed.

HOW MANY BUYERS?

In your analysis of purchasing, have you ever made a study of the personnel necessary on a national average to do an efficient, creditable job? That is, on a basis of dollars spent per annum for production materials, maintenance and supplies? I'd be interested to know what is reasonable to expect with value analy-

sis and cost saving studies becoming such a major effort in purchasing.

F. C. Touton, V.P., Pur.
James Manufacturing Co.
Fort Atkinson, Wis.

• PURCHASING has made several surveys on the subject of the size of buying staffs, and has found no consistent or significant correlation between personnel and dollar volume of purchases. Even among the various buying divisions or commodity sections of a single purchasing department, there are frequently wide variations in this regard. It is obvious that increasing attention to research and analytical activities in purchasing tends to increase requirements of personnel in a department, for the same volume of actual purchases; at the same time, the object of such increases is to reduce the dollars spent. So the ratios in any given operation, and on the average, may be changing. Best reference on this subject is B. D. Henderson's article in our December 1950 issue (p. 81) "Personnel for Profits", in which he discusses Westinghouse's experience and policies on the size of the purchasing staff. On the premise that doubling the creative activities in purchasing would result in cost savings of from 5% to 10%, he reaches the conclusion that this would represent an increase of only $\frac{1}{3}$ of 1% in total company expense but would increase profits by $2\frac{1}{2}\%$ to 5%.—Ed.

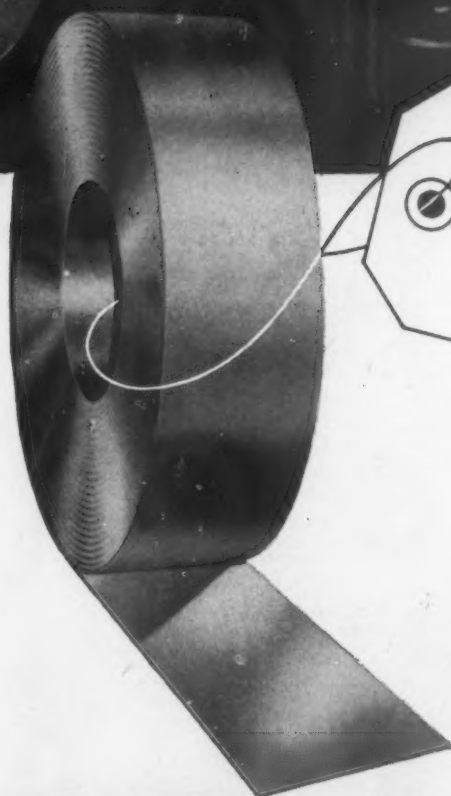
EDITORIAL PAGE PUT TO WORK

Will you please forward to the writer's attention three copies or reprints of page 67 of the September issue of PURCHASING. (Editorial page—"Make Better Use of Interviewing Time") I plan on mounting these and placing them in full view of all salesmen who visit our reception room. I think the article is in such good taste that all visiting salesmen should read it, and I have drawn a lesson from it myself.

A. S. Karcewski, Pur. Agt.
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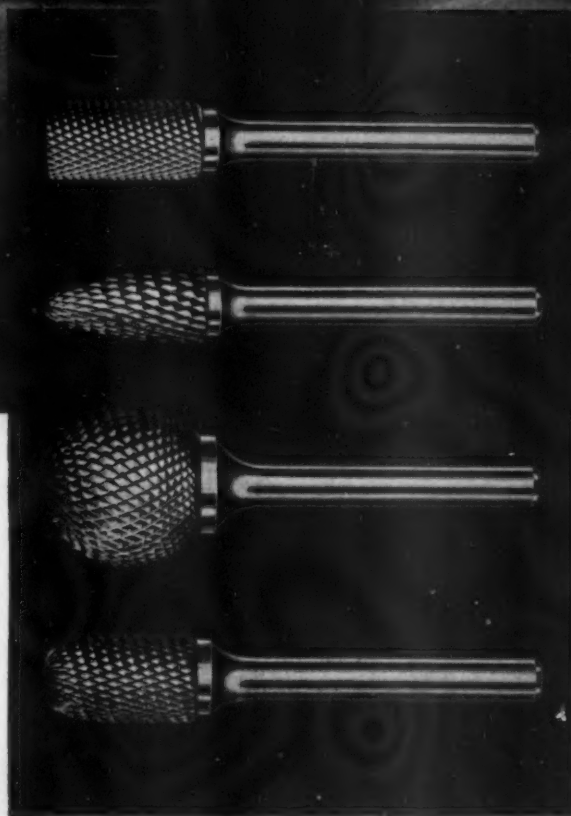
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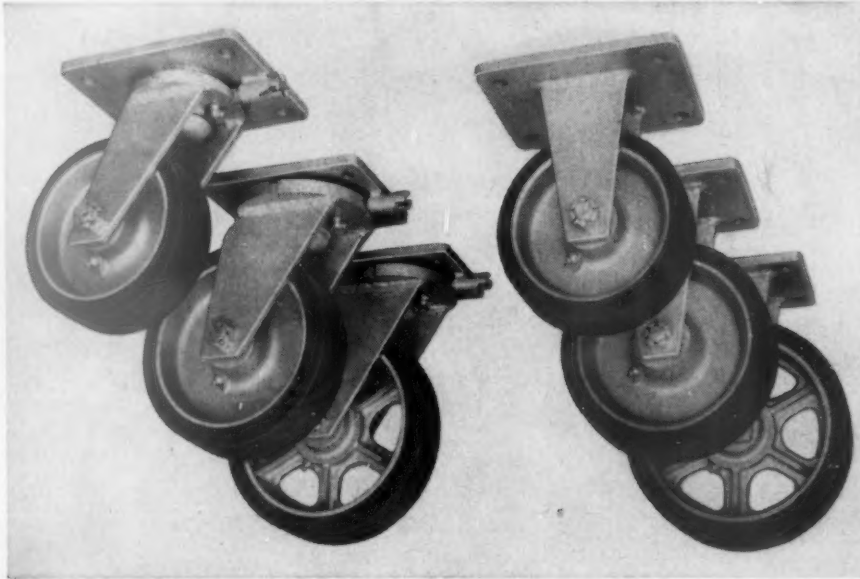
DECEMBER, 1955

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MATERIALS-HANDLING NEWS

★ Panel Discussions by Bassick, World's Largest Manufacturer of Casters and Floor Protection Equipment ★

New Bassick "MilSpec" Casters meet military specifications



Bassick's new "MilSpec" line is specifically designed and engineered to meet the requirements of MIL-4749 and MIL-C-4750 for precision swivel and wheel bearings, sealed bearings, adjustable swivel bearings.

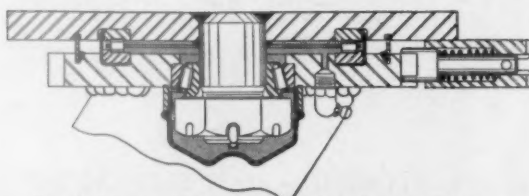
The new line includes 8, 10 and 12 in. heavy-duty, swivel and rigid casters for both inside and outside service on either hand- or power-pulled materials-handling equipment.

The swivel bearings are self-contained, precision units of the highest quality. Wheel bearings are the finest tapered



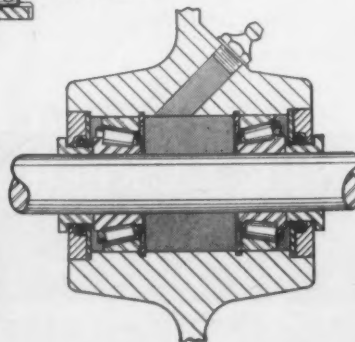
type. Threaded king bolt and slotted nut construction make fine adjustment of swivel bearing possible.

"MilSpec" sealed swivel and wheel bearing assembly



Bassick's sealed construction keeps dirt, water and foreign matter out of both wheel (right) and swivel bearing (above) assemblies of "MilSpec" casters. Protective lubricant stays in to prolong life and insure easy action. Alemite pressure-type grease fittings permit flushing and re-greasing with standard grease guns.

Gray areas show lubrication reservoirs.



MilSpec "Floating-Hub" Caster gives safe ride



Important in the new "MilSpec" line is Bassick's famous "Floating-Hub" caster.

Smothers shocks

It combines the shock absorption of "Floating-Hub's" sprung-wheel construction with the precision quality of "MilSpec" casters. MilSpec "Floating-Hubs" give any load a safe ride — should be first choice in handling any equipment subject to damage in moving.

Tops on rough terrain

They're also better suited for higher speeds and rougher terrains than ordinary casters. And with adjustable precision sealed bearings, MilSpec "Floating-Hubs" will stay on the job long after lesser casters call it quits.

Write for information

Write to Bassick for printed data on the new "MilSpec" casters. Remember — an original investment in quality casters pays off in added years of trouble-free, money-saving performance. Specify Bassick casters and you'll be sure you have the best.

There is an authorized distributor of Bassick casters conveniently located to give you service. He's always a good source of information about new product developments.



THE BASSICK
COMPANY
Bridgeport 2, Conn.
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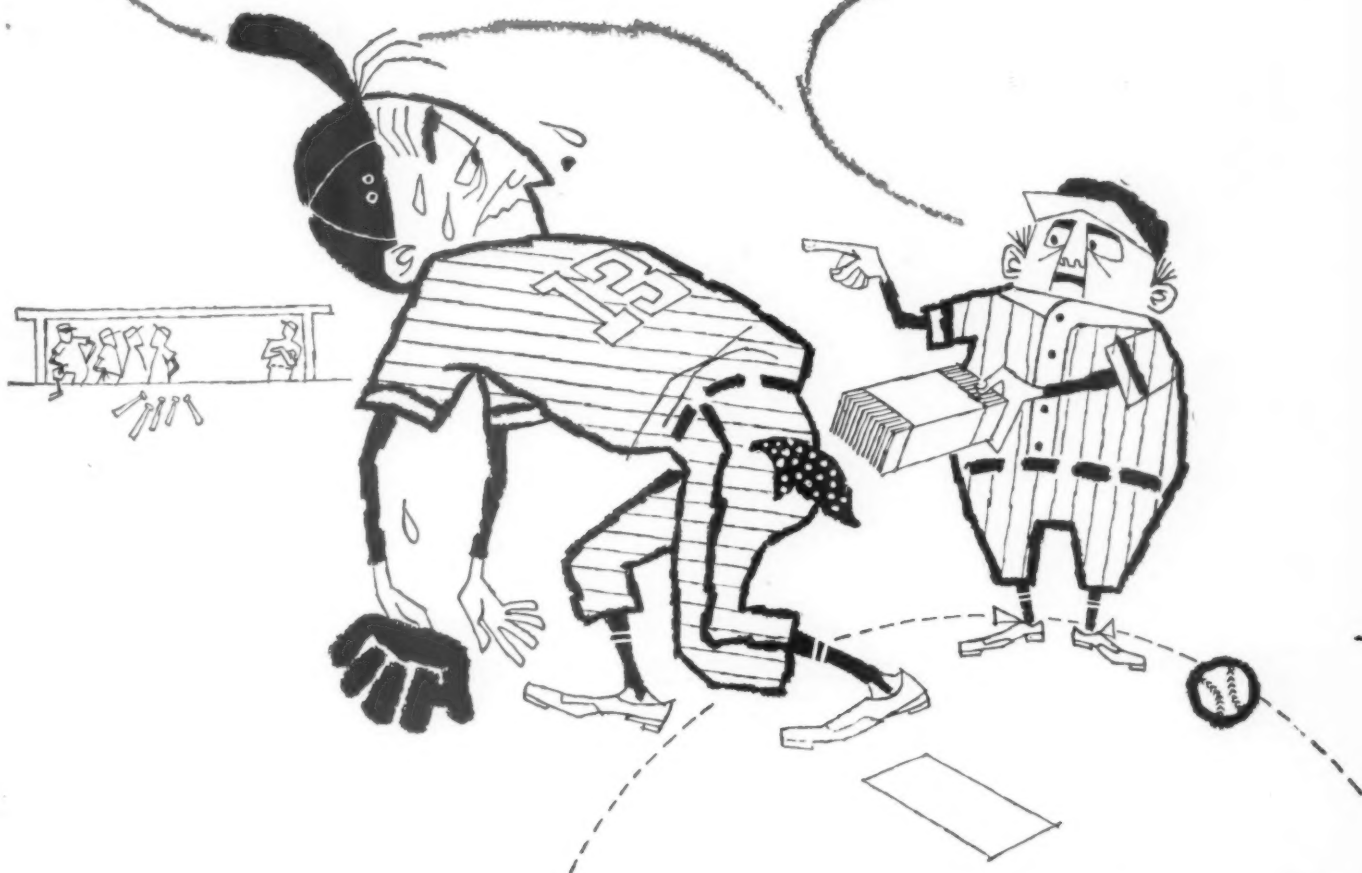
A DIVISION OF



MAKING MORE KINDS OF CASTERS... MAKING CASTERS DO MORE

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**You'll dry faster with
FORT HOWARD
PAPER TOWELS!**



Whether social necessity or the manager dictates, "Take a shower!" people everywhere rely on Fort Howard Paper Towels to dry faster, better. *You'll* like them, too! And Fort Howard Stabilized Absorbency keeps towels fresh and fully absorbent regardless of age.

That's why your best bet in paper towels is *Fort Howard*. 18 different grades and folds assure low-cost user satisfaction for *every* type of washroom. Rely on your Fort Howard distributor salesman to recommend the towel service which suits *your* needs!

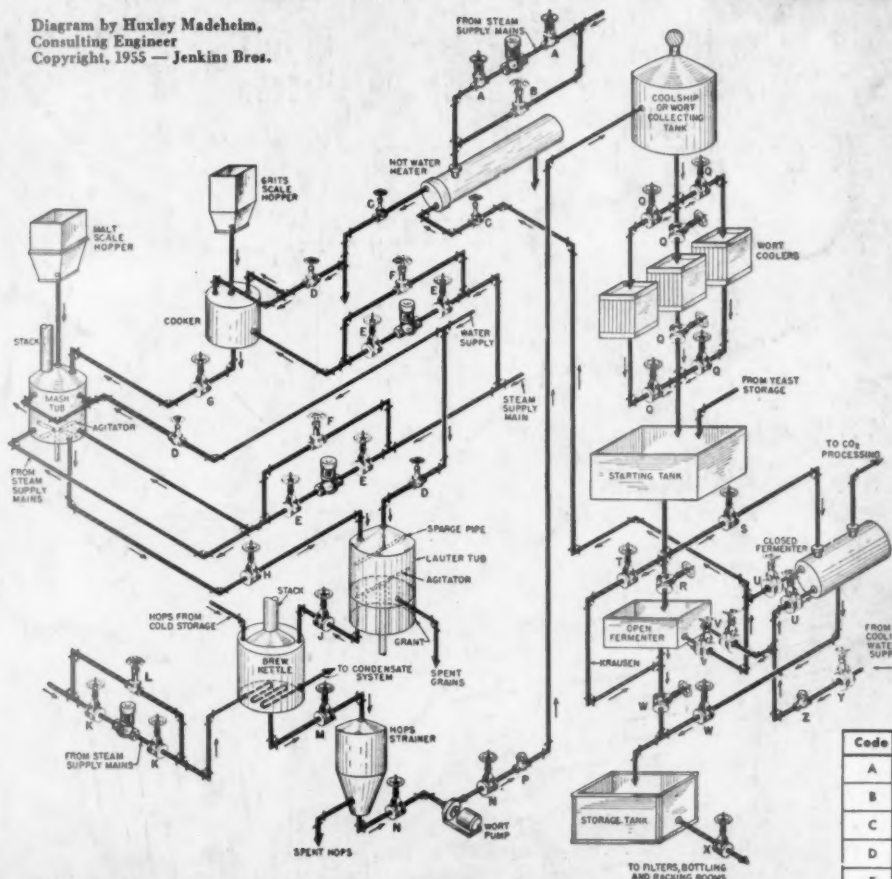


FORT HOWARD PAPER COMPANY, Green Bay, Wisconsin

*For 36 Years, Manufacturers Of Quality Towels,
Toilet Tissue and Paper Napkins*

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Diagram by Huxley Madeheim,
Consulting Engineer
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VALVE RECOMMENDATIONS
For details of valves to suit varying conditions see Jenkins Catalog.

Code	Quan.	Jenkins Valve	Service
A	2	Fig. 275 Bronze Gate	Shutoff steam to heater
B	1	Fig. 556-P Bronze Globe	Bypass to heater
C	2	Fig. 47 Bronze Gate	Shutoff water heater
D	3	Fig. 106-A Bronze Globe	Continuous water flow
E	4	Fig. 204 I.B. Gate	Process steam shutoff
F	2	Fig. 576-P Bronze Globe	Bypass water valve
G	1	Fig. 677-A Bronze Gate	Shutoff cooker mash
H	1	Fig. 677-A Bronze Gate	Shutoff finished mash
J	1	Fig. 677-A Bronze Gate	Shutoff wort to kettle
K	2	Fig. 204 I.B. Gate	Shutoff steam to kettle
L	1	Fig. 576-P Bronze Globe	Bypass to kettle
M	1	Fig. 677-A Bronze Gate	Shutoff wort line
N	2	Fig. 677-A Bronze Gate	Pump shutoff
P	1	Fig. 352 Bronze Swing Check	Prevent backflow
Q	6	Fig. 677-A Bronze Gate	Shutoff coolers
R	1	Fig. 677-A Bronze Gate	Shutoff open fermenter
S	1	Fig. 677-A Bronze Gate	Shutoff closed fermenter
T	2	Fig. 677-A Bronze Gate	Krausen line
U	2	Fig. 675-A Bronze Gate	Water to closed fermenter
V	2	Fig. 675-A Bronze Gate	Water to open fermenter
W	2	Fig. 677-A Bronze Gate	Shutoff storage
X	1	Fig. 677-A Bronze Gate	Shutoff rack & bottling
Y	1	Fig. 675-A Bronze Gate	Shutoff well water
Z	1	Fig. 352 Bronze Swing Check	Prevent backflow

How to plan piping connections for a GRAVITY-FEED MULTIPLE-STORY BREWERY

This piping layout is typical of installations in many breweries designed for gravity-feed processing, and the principal operations are briefly outlined.

Corn grits are cooked with water in the cooker, with enough added malt to convert and liquefy the grits. When the malt, which has been mixed with water in the mash tub, is properly steeped, the finished cook is dropped into it and the resulting mash thoroughly mixed.

Pumped into the Lauter tub, the mash grains settle to form a filter bed, from the bottom of which the clear liquid containing fermentable and unfermentable sugars is drawn. Extraction is increased by "sparging" with hot-water spray. This liquid, the "wort", flows by gravity to the brew kettle.

In the brew kettle, the wort is boiled with hops to add flavor and to clarify and preserve it. The hops are then strained off, and the liquid is pumped to the "coolship" tank to settle. It then goes through

coolers to reclaim most of the residual heat, and on to the starting tank.

In the starting tank, the yeast is added, and the mixture flows to the fermenters, some of which are closed to collect the carbon dioxide gas for future use. After fermentation, the beer is cooled again and sent to storage tanks for eventual bottling and racking.

Consultation with accredited piping engineers and contractors, experienced in brewery design, is recommended when planning any phase of the various processing systems.

To simplify planning, select all the valves you need from the complete Jenkins line. It's your best assurance of *lowest cost in the long run*. Jenkins Bros., 100 Park Ave., New York 17.

Complete description and enlarged diagram of this layout free on request. Includes additional detailed information.

SOLD THROUGH PLUMBING-HEATING AND INDUSTRIAL DISTRIBUTORS

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JENKINS

LOOK FOR THE JENKINS DIAMOND

VALVES

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